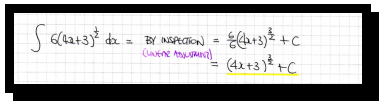
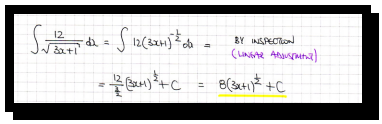
INTEGRATION MIX

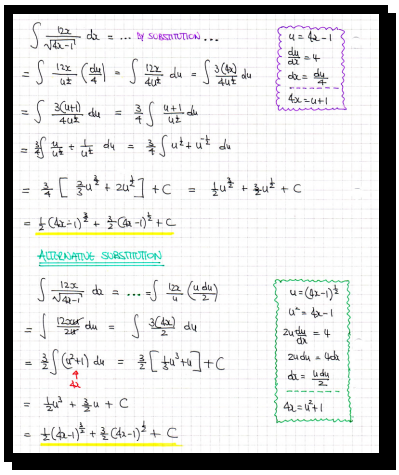
1. $\displaystyle\int 6(4x+3)^{\frac{1}{2}}\,dx=(4x+3)^{\frac{3}{2}}+C$



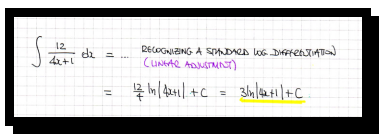
2. $\displaystyle\int \frac{12}{\sqrt{3x+1}}\,dx=8(3x+1)^{\frac{1}{2}}+C$



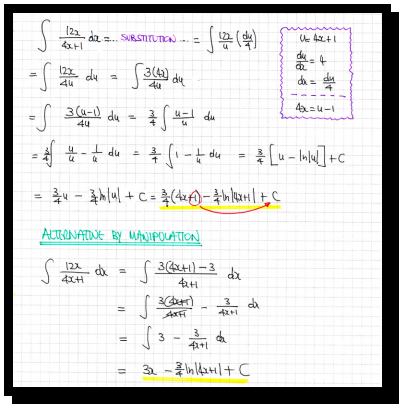
3. $\displaystyle\int \frac{12x}{\sqrt{4x-1}}\,dx=\frac{1}{2}(4x-1)^{\frac{3}{2}}+\frac{3}{2}(4x-1)^{\frac{1}{2}}+C$



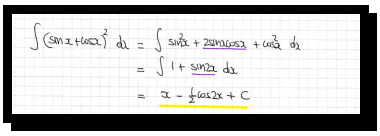
4. $\displaystyle\int \frac{12}{4x+1}\,dx=3\ln\left|4x+1\right|+C$



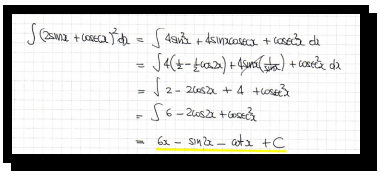
5. $\displaystyle\int \frac{12x}{4x+1}\,dx = 3x - \frac{3}{4}\ln|4x+1| + C$



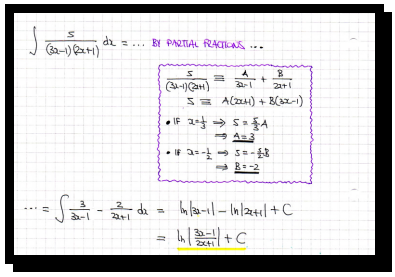
6. $\displaystyle\int (\sin x + \cos x)^2\,dx = x - \frac{1}{2}\cos 2x + C$



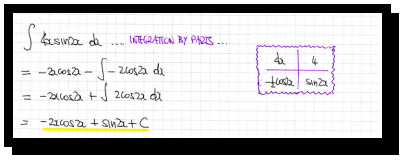
7. $\displaystyle\int (2\sin x + \operatorname{cosec} x)^2\,dx = 6x - \sin 2x - \cot x + C$



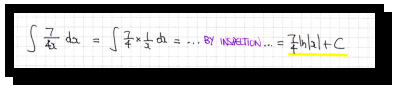
8. $\displaystyle\int \frac{5}{(3x-1)(2x+1)}\,dx = \ln\left|\frac{3x-1}{2x+1}\right| + C$



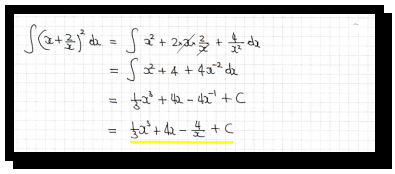
9. $\displaystyle\int 4x\sin 2x\,dx = -2x\cos 2x + \sin 2x + C$



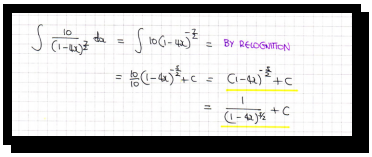
10. $\displaystyle\int \frac{7}{4x}\,dx = \frac{7}{4}\ln|x| + C$



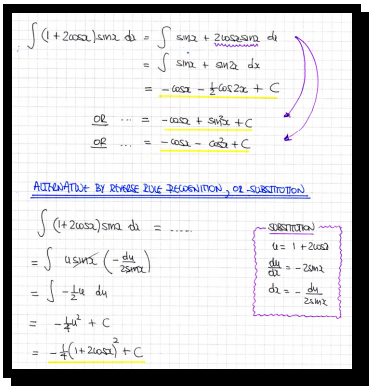
11. $\displaystyle\int \left(x+\frac{2}{x}\right)^2 dx = \frac{1}{3}x^3 + 4x - \frac{4}{x} + C$



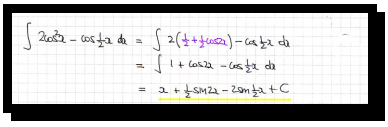
12. $\displaystyle\int \frac{10}{(1-4x)^{\frac{7}{2}}}\,dx = \frac{1}{(1-4x)^{\frac{5}{2}}} + C$



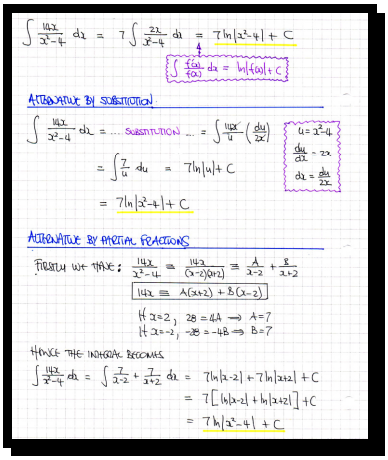
13. $\displaystyle\int (1+2\cos x)\sin x\,dx = \begin{bmatrix} -\cos x - \frac{1}{2}\cos 2x + C \\ -\cos x + \sin^2 x + C \\ -\cos x - \cos^2 x + C \\ -\frac{1}{4}(1+2\cos x)^2 + C \end{bmatrix}$



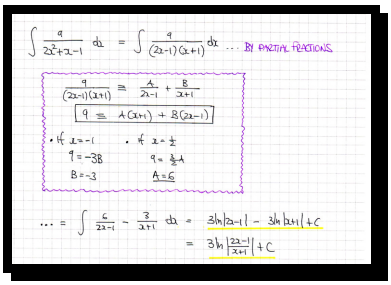
14. $\displaystyle\int 2\cos^2 x - \cos\left(\frac{1}{2}x\right)\,dx = x + \frac{1}{2}\sin 2x - 2\sin\left(\frac{1}{2}x\right) + C$



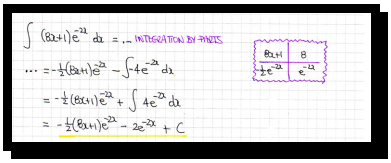
15. $\displaystyle\int \frac{14x}{x^2-4}\,dx = 7\ln\left|x^2-4\right|+C$



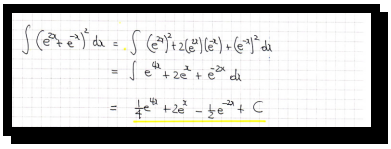
16. $\displaystyle\int \frac{9}{2x^2+x-1}\,dx = 3\ln\left|\frac{2x-1}{x+1}\right|+C$



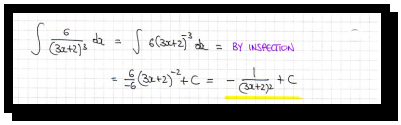
17. $\displaystyle\int (8x+1)\mathrm{e}^{-2x}\,dx = -\frac{1}{2}(8x+1)\mathrm{e}^{-2x} - 2\mathrm{e}^{-2x} + C$



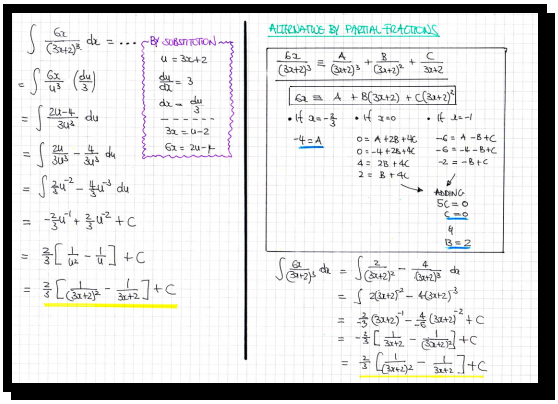
18. $\displaystyle\int\left(\mathrm{e}^{2x}+\mathrm{e}^{-x}\right)^2\,dx=\frac{1}{4}\mathrm{e}^{4x}+2\mathrm{e}^{x}-\frac{1}{2}\mathrm{e}^{-2x}+C$



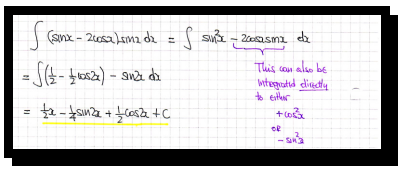
19. $\displaystyle\int\frac{6}{(3x+2)^3}\,dx=-\frac{1}{(3x+2)^2}+C$



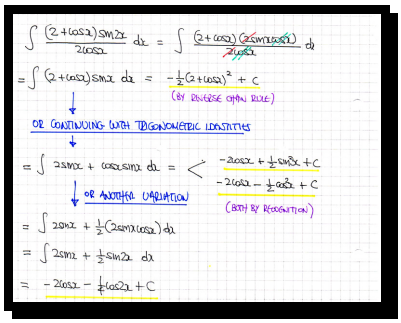
20. $\displaystyle\int\frac{6x}{(3x+2)^3}\,dx=\frac{2}{3}\left[\frac{1}{(3x+2)^2}-\frac{1}{3x+2}\right]+C$



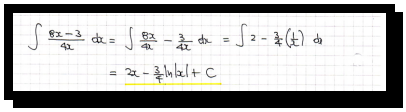
21. $\displaystyle\int (\sin x - 2\cos x)\sin x \, dx = \begin{bmatrix} \frac{1}{2}x - \frac{1}{4}\sin 2x + \frac{1}{2}\cos 2x + C \\ \frac{1}{2}x - \frac{1}{4}\sin 2x + \cos^2 x + C \\ \frac{1}{2}x - \frac{1}{4}\sin 2x - \sin^2 x + C \end{bmatrix}$



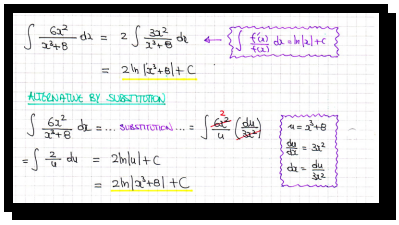
22. $\displaystyle\int \frac{(2+\cos x)\sin 2x}{2\cos x}\, dx = \begin{bmatrix} -\frac{1}{2}(2+\cos x)^2 + C \\ -2\cos x + \frac{1}{2}\sin^2 x + C \\ -2\cos x - \frac{1}{2}\cos^2 x + C \\ -2\cos x - \frac{1}{4}\cos 2x + C \end{bmatrix}$



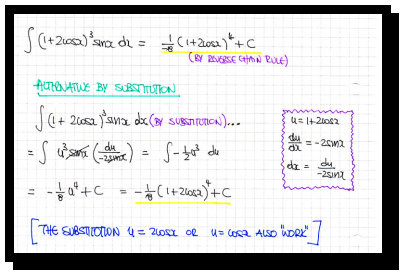
23. $\displaystyle\int \frac{8x-3}{4x}\, dx = 2x - \frac{3}{4}\ln|x| + C$



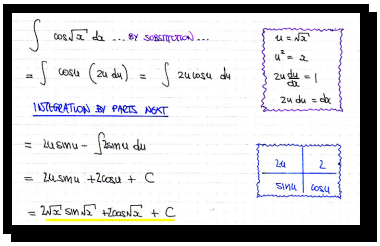
24. $\displaystyle\int \frac{6x^2}{x^3+8}\,dx = 2\ln\left|x^3+8\right|+C$



25. $\displaystyle\int (1+2\cos x)^3 \sin x\,dx = -\frac{1}{8}(1+2\cos x)^4 + C$



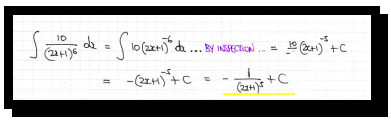
26. $\displaystyle\int \cos\sqrt{x}\,dx = 2\sqrt{x}\sin\sqrt{x} + 2\cos\sqrt{x} + C$



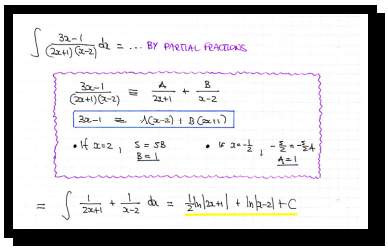
27. $\displaystyle\int \frac{3}{2x-1}\,dx = \frac{3}{2}\ln\left|2x-1\right|+C$



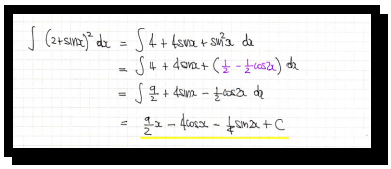
28. $\displaystyle\int \frac{10}{(2x+1)^6}\,dx = -\frac{1}{(2x+1)^5}+C$



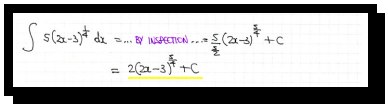
29. $\displaystyle\int \frac{3x-1}{(2x+1)(x-2)}\,dx = \frac{1}{2}\ln|2x+1|+\ln|x-2|+C$



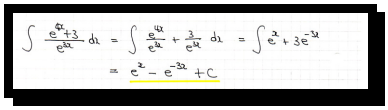
30. $\displaystyle\int (2+\sin x)^2\,dx = \frac{9}{2}x-4\cos x-\frac{1}{4}\sin 2x+C$



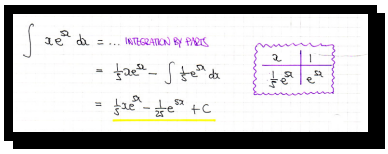
31. $\displaystyle\int 5(2x-3)^{\frac{1}{4}}\,dx = 2(2x-3)^{\frac{5}{4}}+C$



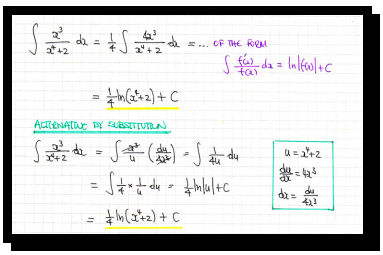
32. $\displaystyle\int \frac{\mathrm{e}^{4x}+3}{\mathrm{e}^{3x}}\,dx=\mathrm{e}^{x}-\mathrm{e}^{-3x}+C$



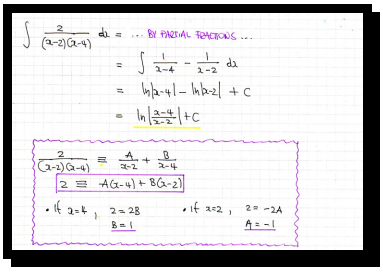
33. $\displaystyle\int x\mathrm{e}^{5x}\,dx=\frac{1}{5}x\mathrm{e}^{5x}-\frac{1}{25}\mathrm{e}^{5x}+C$



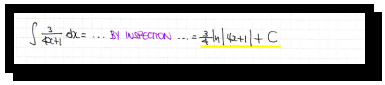
34. $\displaystyle\int \frac{x^3}{x^4+2}\,dx=\frac{1}{4}\ln\left(x^4+2\right)+C$



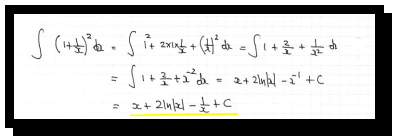
35. $\displaystyle\int \frac{2}{(x-2)(x-4)}\,dx=\ln\left|\frac{x-4}{x-2}\right|+C$



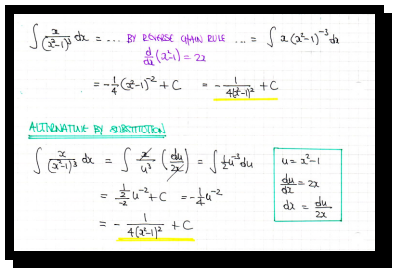
36. $\displaystyle\int \frac{3}{4x+1}\,dx = \frac{3}{4}\ln\left|4x+1\right| + C$



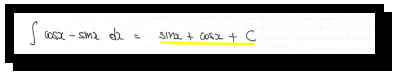
37. $\displaystyle\int \left(1+\frac{1}{x}\right)^2 dx = x + 2\ln\left|x\right| - \frac{1}{x} + C$



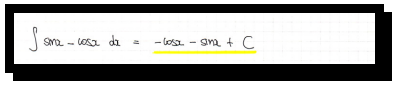
38. $\displaystyle\int \frac{x}{\left(x^2-1\right)^3}\,dx = -\frac{1}{4\left(x^2-1\right)^2} + C$



39. $\displaystyle\int \cos x - \sin x\,dx = \sin x + \cos x + C$



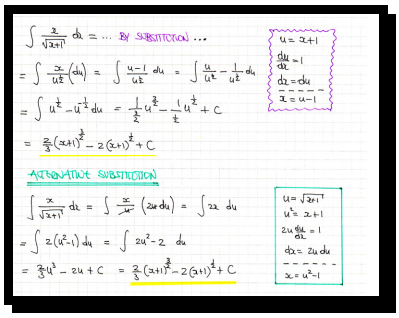
40. $\int \sin x - \cos x \, dx = -\cos x - \sin x + C$



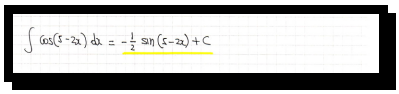
41. $\int \sin(4x+3) \, dx = -\frac{1}{4}\cos(4x+3) + C$



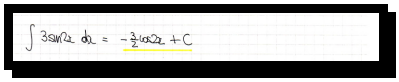
42. $\int \frac{x}{\sqrt{x+1}} \, dx = \frac{2}{3}(x+1)^{\frac{3}{2}} - 2(x+1)^{\frac{1}{2}} + C$



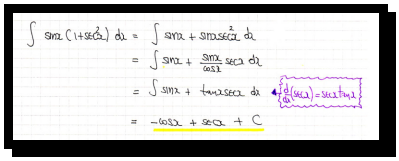
43. $\int \cos(5-2x) \, dx = -\frac{1}{2}\sin(5-2x) + C$



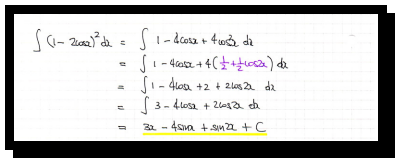
44. $\displaystyle\int 3\sin 2x\ dx = -\frac{3}{2}\cos 2x + C$



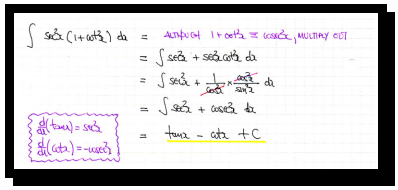
45. $\displaystyle\int \left(1+\sec^2 x\right)\sin x\ dx = -\cos x + \sec x + C$



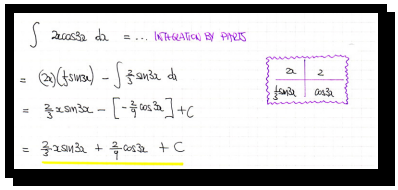
46. $\displaystyle\int \left(1-2\cos x\right)^2\ dx = 3x - 4\sin x + \sin 2x + C$



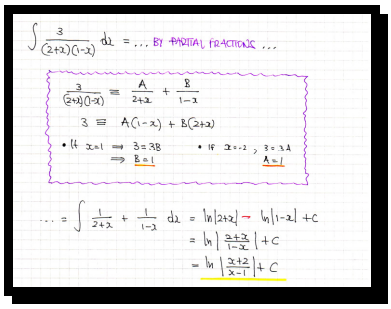
47. $\displaystyle\int \left(1+\cot^2 x\right)\sec^2 x\ dx = \tan x - \cot x + C$



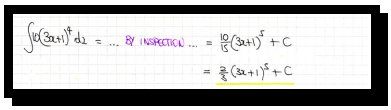
48. $\displaystyle\int 2x\cos 3x\ dx = \frac{2}{3}x\sin 3x + \frac{2}{9}\cos 3x + C$



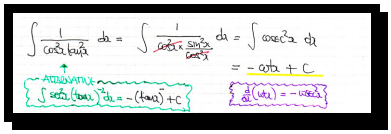
49. $\displaystyle\int \frac{3}{(2+x)(1-x)}\ dx = \ln\left|\frac{x+2}{x-1}\right| + C$



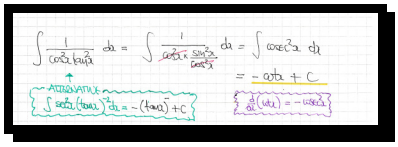
50. $\displaystyle\int 10(3x+1)^4\ dx = \frac{2}{3}(3x+1)^5 + C$



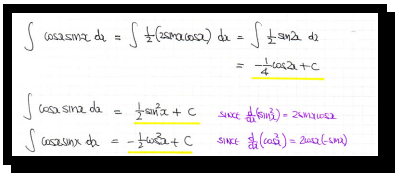
51. $\displaystyle\int 6(2x+1)^{\frac{1}{2}}\ dx = 2(2x+1)^{\frac{3}{2}} + C$



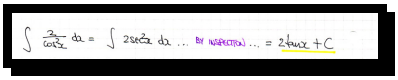
52. $\displaystyle\int \frac{1}{\cos^2 x \tan^2 x}\,dx = -\cot x + C$



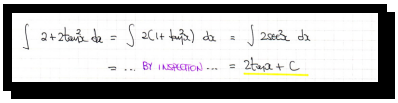
53. $\displaystyle\int \cos x \sin x\,dx = \begin{bmatrix} -\frac{1}{4}\cos 2x + C \\ -\frac{1}{2}\cos^2 x + C \\ \frac{1}{2}\sin^2 x + C \end{bmatrix}$



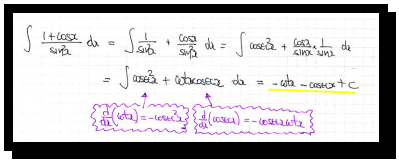
54. $\displaystyle\int \frac{2}{\cos^2 x}\,dx = 2\tan x + C$



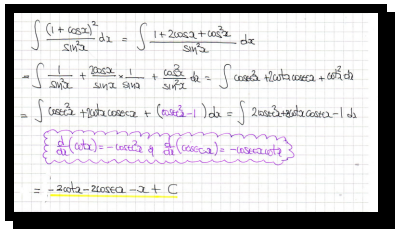
55. $\displaystyle\int 2 + 2\tan^2 x\,dx = 2\tan x + C$



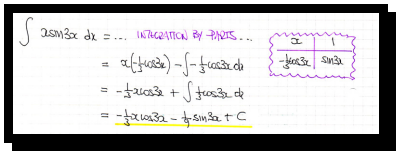
56. $\displaystyle\int \frac{1+\cos x}{\sin^2 x}\,dx = -\cot x - \operatorname{cosec} x + C$



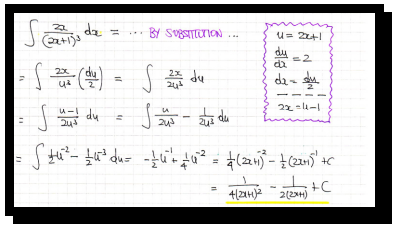
57. $\displaystyle\int \frac{(1+\cos x)^2}{\sin^2 x}\,dx = -x - 2\cot x - 2\operatorname{cosec} x + C$



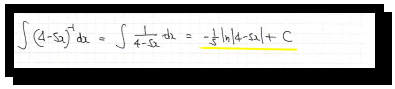
58. $\displaystyle\int x\sin 3x\,dx = -\frac{1}{3}x\cos 3x - -\frac{1}{9}\sin 3x + C$



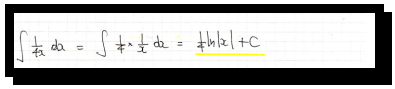
59. $\displaystyle\int \frac{2x}{(2x+1)^3}\,dx = \frac{1}{4(2x+1)^2} - \frac{1}{2(2x+1)} + C$



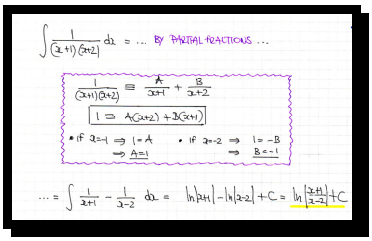
60. $\displaystyle\int (4-5x)^{-1}\,dx = -\frac{1}{5}\ln|4-5x| + C$



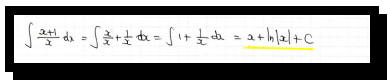
61. $\displaystyle\int \frac{1}{4x}\,dx = \frac{1}{4}\ln|x| + C$



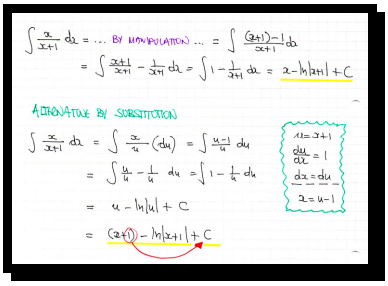
62. $\displaystyle\int \frac{1}{(x+1)(x+2)}\,dx = \ln\left|\frac{x+1}{x-2}\right| + C$



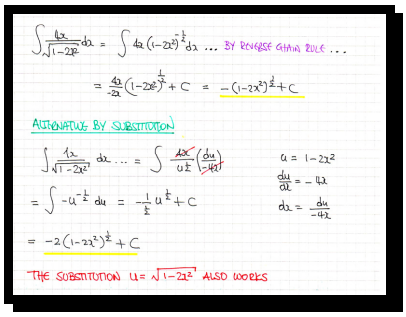
63. $\displaystyle\int \frac{x+1}{x}\,dx = x + \ln|x| + C$



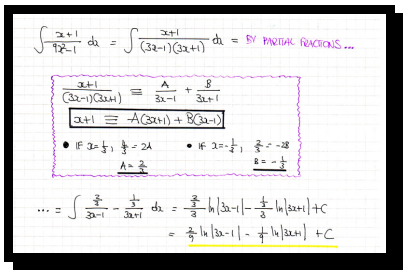
64. $\displaystyle\int \frac{x}{x+1}\,dx = x - \ln|x+1| + C$



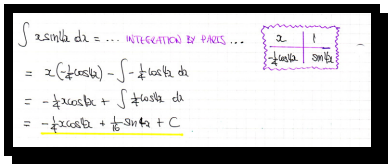
65. $\displaystyle\int \frac{4x}{\sqrt{1-2x^2}}\,dx = -\sqrt{1-2x^2} + C$



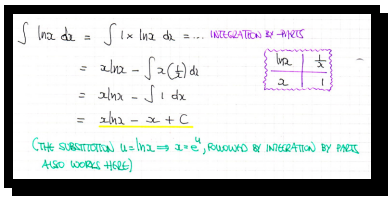
66. $\displaystyle\int \frac{x+1}{9x^2-1}\,dx = \frac{2}{9}\ln|3x-1| - \frac{1}{9}\ln|3x+1| + C$



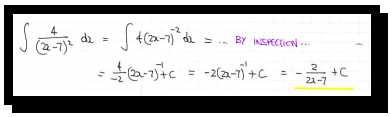
67. $\displaystyle\int x\sin 4x\,dx=\frac{1}{16}\sin 4x-\frac{1}{4}x\cos 4x+C$



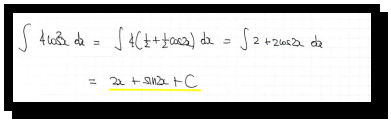
68. $\displaystyle\int \ln x\,dx=x\ln x-x+C$



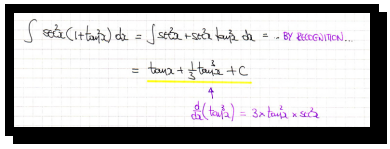
69. $\displaystyle\int \frac{4}{(2x-7)^2}\,dx=-\frac{2}{2x-7}+C$



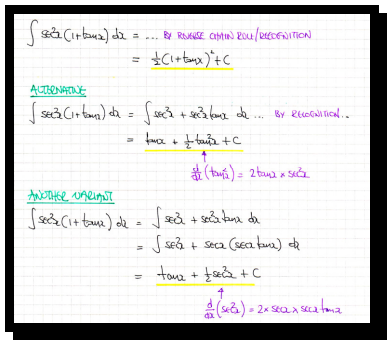
70. $\displaystyle\int 4\cos^2 x\,dx=2x+\sin 2x+C$



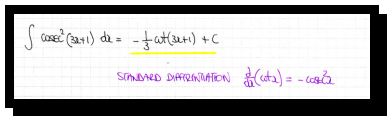
71. $\displaystyle\int \left(1+\tan^2 x\right)\sec^2 x\, dx = \tan x+\frac{1}{3}\tan^3 x+C$



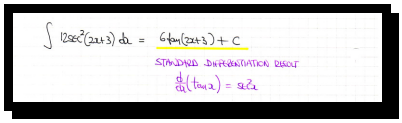
72. $\displaystyle\int \left(1+\tan x\right)\sec^2 x\, dx = \begin{bmatrix} \frac{1}{2}(1+\tan x)^2+C \\ \tan x+\frac{1}{2}\tan^2 x+C \\ \tan x+\frac{1}{2}\sec^2 x+C \end{bmatrix}$



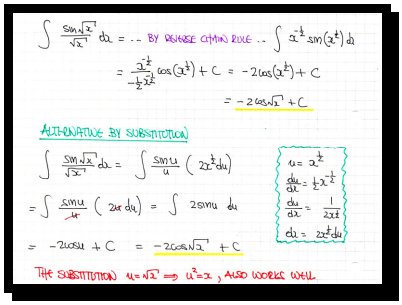
73. $\displaystyle\int \operatorname{cosec}^2(3x+1)\, dx = -\frac{1}{3}\cot(3x+1)+C$



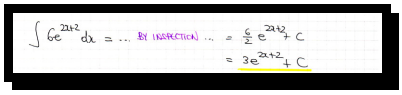
74. $\displaystyle\int 12\sec^2(2x+3)\, dx = 6\tan(2x+3)+C$



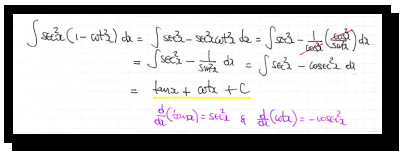
75. $\displaystyle\int \frac{\sin\sqrt{x}}{\sqrt{x}}\,dx = -2\cos\sqrt{x}+C$



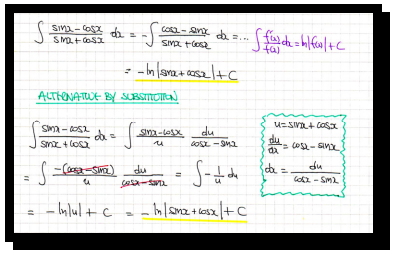
76. $\displaystyle\int 6\mathrm{e}^{2x+2}\,dx = 3\mathrm{e}^{2x+2}+C$



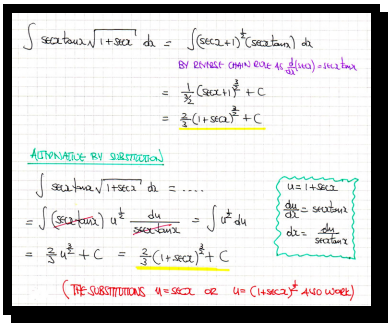
77. $\displaystyle\int \left(1-\cot^2 x\right)\sec^2 x\,dx = \tan x+\cot x+C$



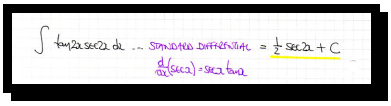
78. $\displaystyle\int \frac{\sin x-\cos x}{\sin x+\cos x}\,dx = -\ln\left|\sin x+\cos x\right|+C$



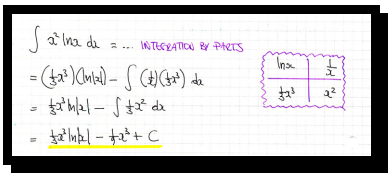
79. $\displaystyle\int \sec x \tan x \sqrt{1+\sec x}\ dx = \frac{2}{3}(1+\sec x)^{\frac{3}{2}} + C$



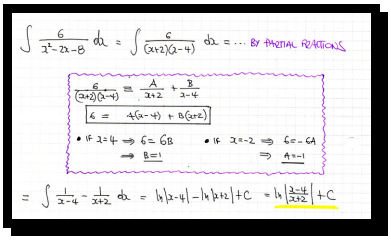
80. $\displaystyle\int \tan 2x \sec 2x\ dx = \frac{1}{2}\sec 2x + C$



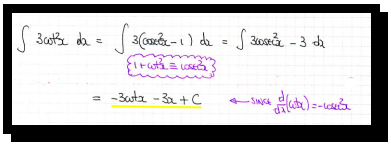
81. $\displaystyle\int x^2 \ln x\ dx = \frac{1}{3}x^3 \ln|x| - \frac{1}{9}x^3 + C$



82. $\displaystyle\int \frac{6}{x^2-2x-8}\ dx = \ln\left|\frac{x-4}{x+2}\right| + C$

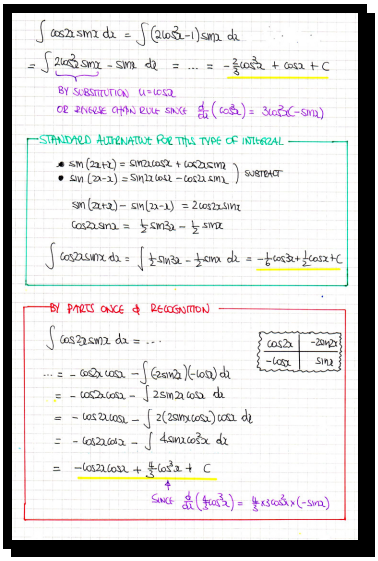


83. $\int 3\cot^2 x \ dx = -3x - 3\cot x + C$



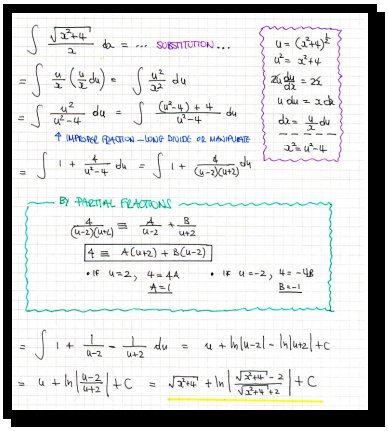
84. $\int \cos 2x \sin x \ dx =$

$$\begin{bmatrix} -\frac{2}{3}\cos^3 x + \cos x + C \\ -\frac{1}{6}\cos 3x + \frac{1}{2}\cos x + C \\ \frac{4}{3}\cos^3 x - \cos 2x \cos x + C \\ \frac{1}{3}\cos 2x \cos x + \frac{2}{3}\sin 2x \sin x + C \\ \frac{1}{3}\sin x \sin 2x + \frac{1}{3}\cos x + C \\ \frac{2}{3}\sin^2 x \cos x + \frac{1}{3}\cos x + C \\ \frac{1}{3}\left(1 + 2\sin^2 x\right)\cos x + C \\ -\frac{1}{4}\cos 3x + \frac{5}{4}\cos x + C \end{bmatrix}$$

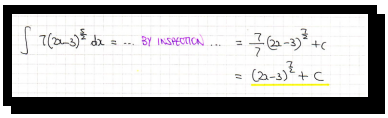




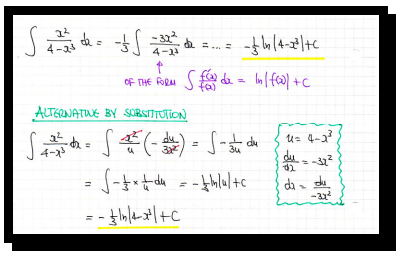
85. $\displaystyle\int \frac{\sqrt{x^2+4}}{x}\,dx=\sqrt{x^2+4}+\ln\left|\frac{\sqrt{x^2+4}-2}{\sqrt{x^2+4}+2}\right|+C$



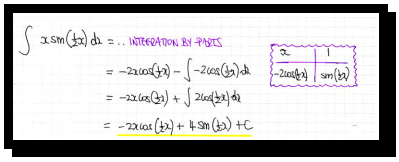
86. $\displaystyle\int 7(2x-3)^{\frac{5}{2}}\,dx=(2x-3)^{\frac{7}{2}}+C$



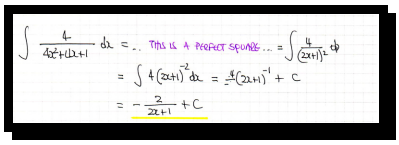
87. $\displaystyle\int \frac{x^2}{4-x^3}\,dx=-\frac{1}{3}\ln\left|4-x^3\right|+C$



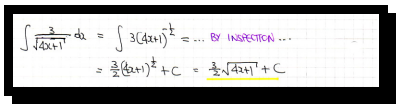
88. $\displaystyle\int x\sin\left(\frac{1}{2}x\right)\,dx=-2x\cos\left(\frac{1}{2}x\right)+4\sin\left(\frac{1}{2}x\right)+C$



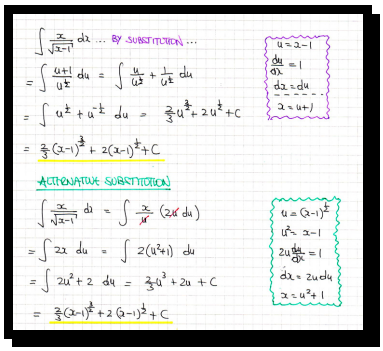
89. $\displaystyle\int \frac{4}{4x^2+4x+1}\,dx=-\frac{2}{2x+1}+C$



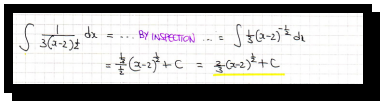
90. $\displaystyle\int \frac{3}{\sqrt{4x+1}}\,dx=\frac{3}{2}\sqrt{4x+1}+C$



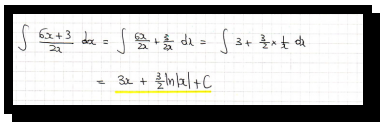
91. $\displaystyle\int \frac{x}{\sqrt{x-1}}\,dx=\frac{2}{3}(x-1)^{\frac{3}{2}}+2(x-1)^{\frac{1}{2}}+C$



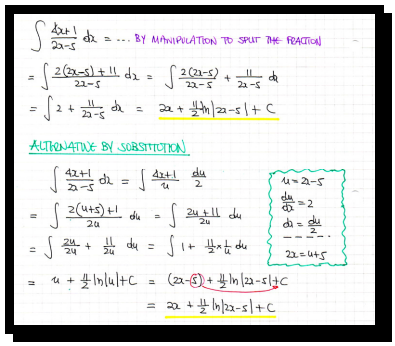
92. $\displaystyle\int \frac{1}{3(x-2)^{\frac{1}{2}}}\,dx = \frac{2}{3}(x-2)^{\frac{1}{2}} + C$



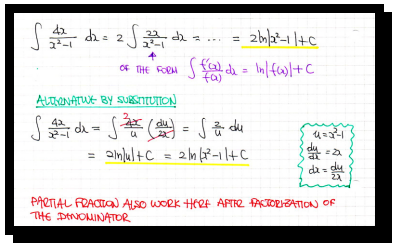
93. $\displaystyle\int \frac{6x+3}{2x}\,dx = 3x + \frac{3}{2}\ln|x| + C$



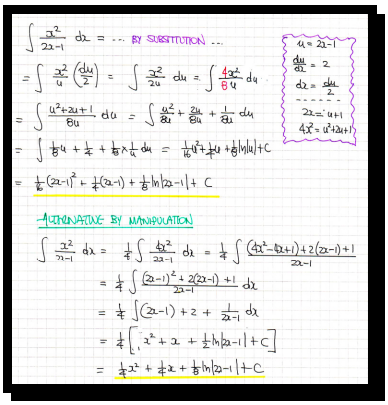
94. $\displaystyle\int \frac{4x+1}{2x-5}\,dx = 2x + \frac{11}{2}\ln|2x-5| + C$



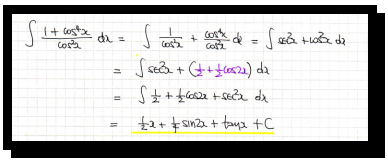
95. $\displaystyle\int \frac{4x}{x^2-1}\,dx = 2\ln|x^2-1| + C$



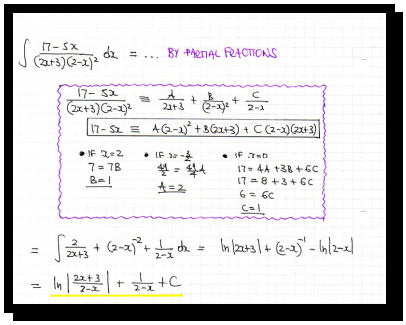
96. $$\int \frac{x^2}{2x-1}\,dx = \begin{bmatrix} \frac{1}{16}(2x-1)^2+\frac{1}{4}(2x-1)+\frac{1}{8}\ln|2x-1|+C \\ \frac{1}{4}x^2+\frac{1}{4}x+\frac{1}{8}\ln|2x-1|+C \end{bmatrix}$$



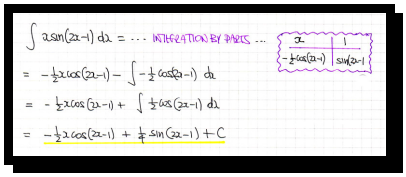
97. $$\int \frac{1+\cos^4 x}{\cos^2 x}\,dx = \frac{1}{2}x+\frac{1}{4}\sin 2x+\tan x+C$$



98. $$\int \frac{17-5x}{(2x+3)(2-x)^2}\,dx = \ln\left|\frac{2x+3}{2-x}\right|+\frac{1}{2-x}+C$$



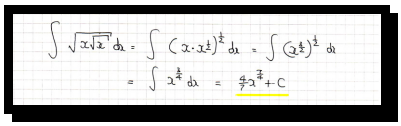
99. $\displaystyle\int x\sin(2x-1)\,dx=-\frac{1}{2}x\cos(2x-1)+\frac{1}{4}\sin(2x-1)+C$



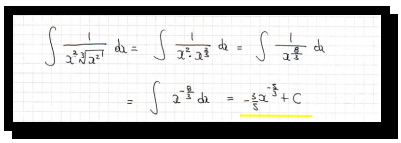
100. $\displaystyle\int 4(3x-2)^3\,dx=\frac{1}{3}(3x-2)^4+C$



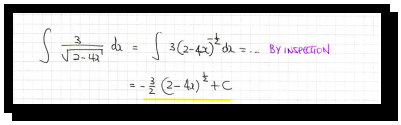
101. $\displaystyle\int \sqrt{x\sqrt{x}}\,dx=\frac{4}{7}x^{\frac{7}{4}}+C$



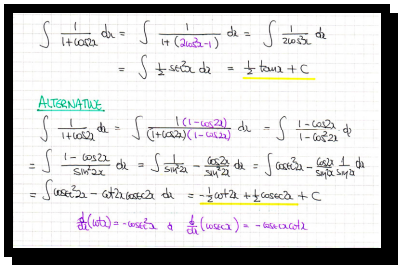
102. $\displaystyle\int \frac{1}{x^2\sqrt[3]{x^2}}\,dx=-\frac{3}{5}x^{-\frac{5}{3}}+C$



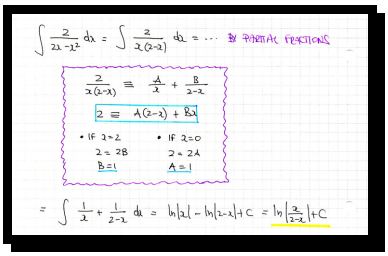
103. $\displaystyle\int \frac{3}{\sqrt{2-4x}}\,dx = -\frac{3}{2}(2-4x)^{\frac{1}{2}} + C$



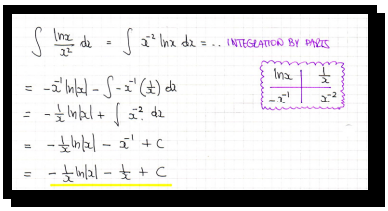
104. $\displaystyle\int \frac{1}{1+\cos 2x}\,dx = \begin{bmatrix} \frac{1}{2}\tan x + C \\ \frac{1}{2}\operatorname{cosec} 2x - \frac{1}{2}\cot 2x + C \end{bmatrix}$



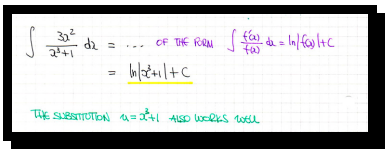
105. $\displaystyle\int \frac{2}{2x-x^2}\,dx = \ln\left|\frac{x}{2-x}\right| + C$



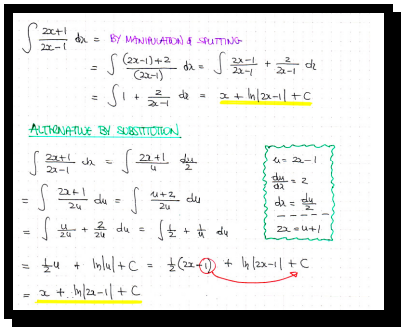
106. $\displaystyle\int \frac{\ln x}{x^2}\,dx = -\frac{1}{x} - \frac{\ln|x|}{x} + C$



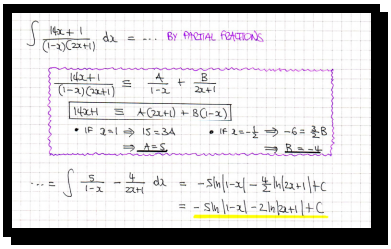
107. $\displaystyle\int \frac{3x^2}{x^3+1}\,dx = \ln\left|x^3+1\right| + C$



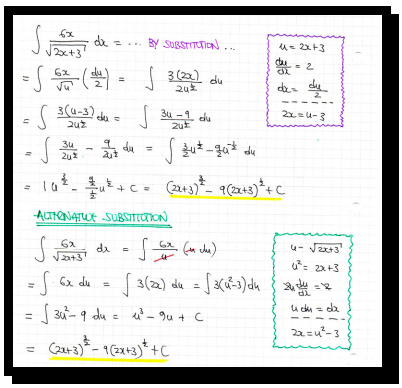
108. $\displaystyle\int \frac{2x+1}{2x-1}\,dx = x + \ln\left|2x-1\right| + C$



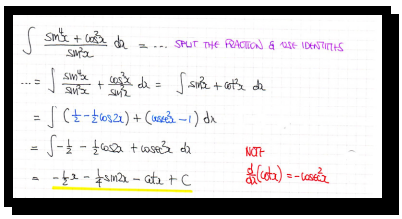
109. $\displaystyle\int \frac{14x+1}{(1-x)(2x+1)}\,dx=-5\ln|1-x|-2\ln|2x+1|+C$



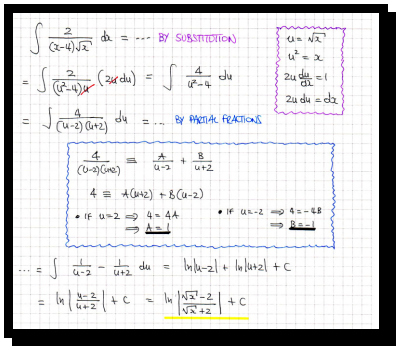
110. $\displaystyle\int \frac{6x}{\sqrt{2x+3}}\,dx=(2x+3)^{\frac{3}{2}}-9(2x+3)^{\frac{1}{2}}+C$



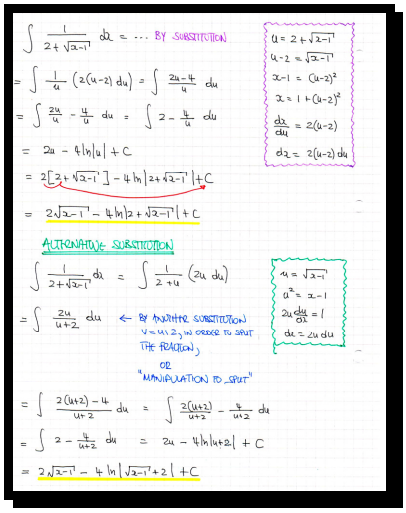
111. $\displaystyle\int \frac{\sin^4 x+\cos^2 x}{\sin^2 x}\,dx=-\frac{1}{2}x-\frac{1}{4}\sin 2x-\cot x+C$



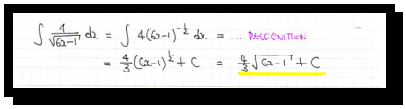
112. $\displaystyle\int \frac{2}{(x-4)\sqrt{x}}\,dx=\ln\left|\frac{\sqrt{x}-2}{\sqrt{x}+2}\right|+C$



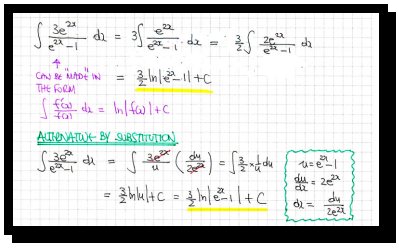
113. $\displaystyle\int \frac{1}{2+\sqrt{x-1}}\,dx=2\sqrt{x-1}-4\ln\left|2+\sqrt{x-1}\right|+C$



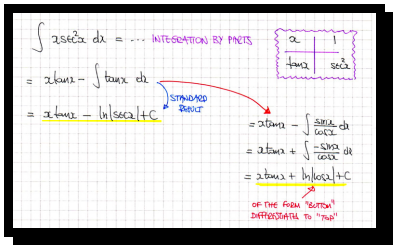
114. $\displaystyle\int \frac{4}{\sqrt{6x-1}}\,dx=\frac{4}{3}\sqrt{6x-1}+C$



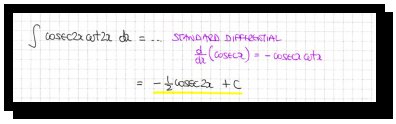
115. $\displaystyle\int \frac{3\mathrm{e}^{2x}}{\mathrm{e}^{2x}-1}\,dx=\frac{3}{2}\ln\left|\mathrm{e}^{2x}-1\right|+C$



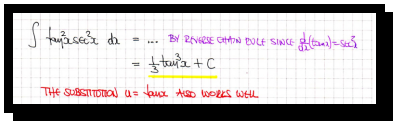
116. $\displaystyle\int x\sec^2 x\,\,dx=\begin{bmatrix} x\tan x-\ln\left|\sec x\right|+C \\ x\tan x+\ln\left|\cos x\right|+C \end{bmatrix}$



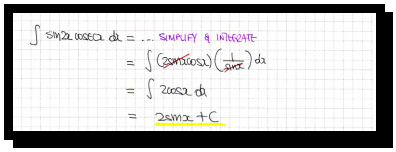
117. $\displaystyle\int \operatorname{cosec} 2x\cot 2x\,\,dx=-\frac{1}{2}\operatorname{cosec} 2x+C$



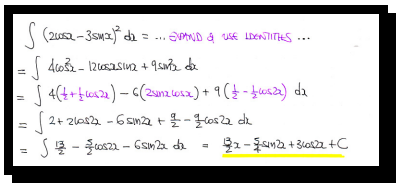
118. $\displaystyle\int \tan^2 x\sec^2 x\,\,dx=\frac{1}{3}\tan^3 x+C$



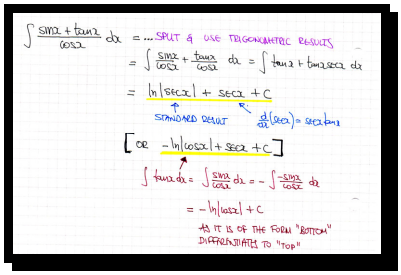
119. $\displaystyle\int \sin 2x \operatorname{cosec} x \ dx = 2\sin x + C$



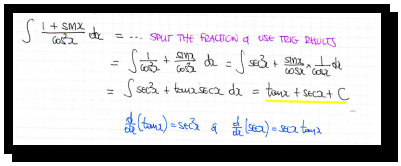
120. $\displaystyle\int (2\cos x - 3\sin x)^2 \ dx = \frac{13}{2}x - \frac{5}{4}\sin 2x + 3\cos 2x + C$



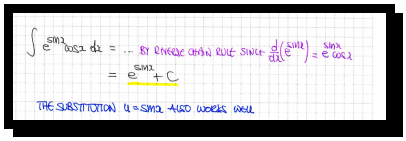
121. $\displaystyle\int \frac{\sin x + \tan x}{\cos x} \ dx = \begin{bmatrix} \sec x + \ln|\sec x| + C \\ \sec x - \ln|\cos x| + C \end{bmatrix}$



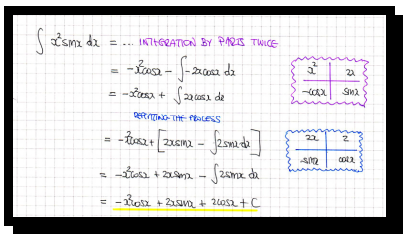
122. $\displaystyle\int \frac{1+\sin x}{\cos^2 x} \ dx = \tan x + \sec x + C$



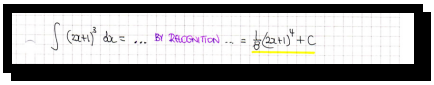
123. $\displaystyle\int \mathrm{e}^{\sin x}\cos x\ dx=\mathrm{e}^{\sin x}+C$



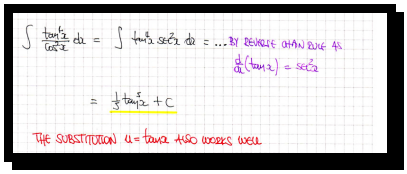
124. $\displaystyle\int x^2\sin x\ dx=-x^2\cos x+2x\sin x+2\cos x+C$



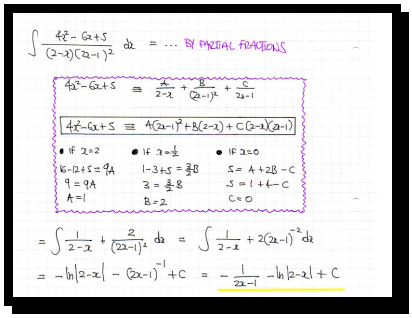
125. $\displaystyle\int (2x+1)^3\ dx=\frac{1}{8}(2x+1)^4+C$



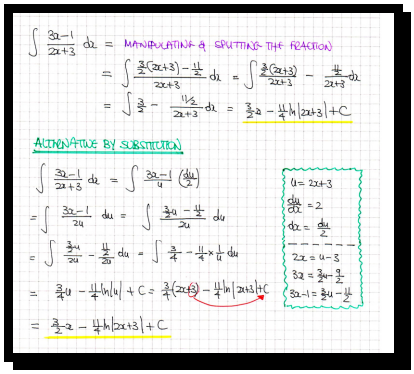
126. $\displaystyle\int \frac{\tan^4 x}{\cos^2 x}\ dx=\frac{1}{5}\tan^5 x+C$



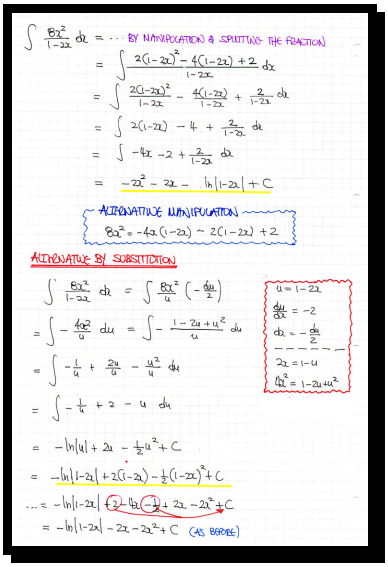
127. $$\int \frac{4x^2-6x+5}{(2-x)(2x-1)^2}\,dx=-\frac{1}{2x-1}-\ln|2-x|+C$$



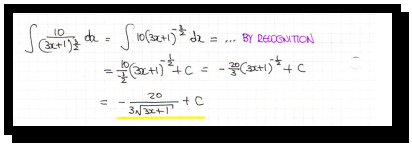
128. $$\int \frac{3x-1}{2x+3}\,dx=\frac{3}{2}x-\frac{11}{4}\ln|2x+3|+C$$



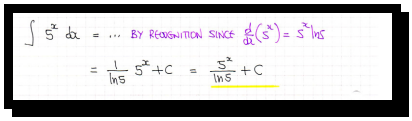
129. $$\int \frac{8x^2}{1-2x}\,dx = \begin{bmatrix} -2x^2-2x-\ln|1-2x|+C \\ 2(1-2x)-\frac{1}{2}(1-2x)^2-\ln|1-2x|+C \end{bmatrix}$$



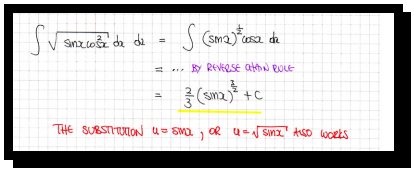
130. $$\int \frac{10}{(3x+1)^{\frac{3}{2}}}\,dx = -\frac{20}{3\sqrt{3x+1}}+C$$



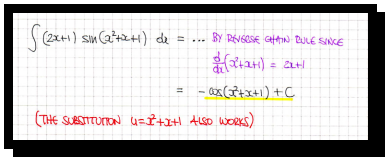
131. $$\int 5^x\,dx = \frac{5^x}{\ln 5}+C$$



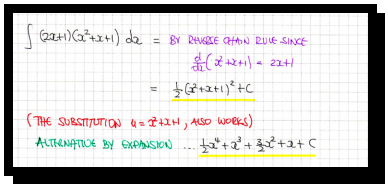
132. $\displaystyle\int \sqrt{\sin x \cos^2 x}\ dx = \frac{2}{3}(\sin x)^{\frac{3}{2}} + C$



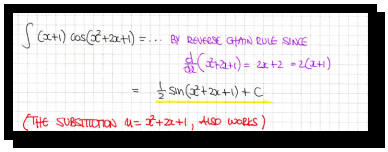
133. $\displaystyle\int (2x+1)\sin\left(x^2+x+1\right)\ dx = -\cos\left(x^2+x+1\right) + C$



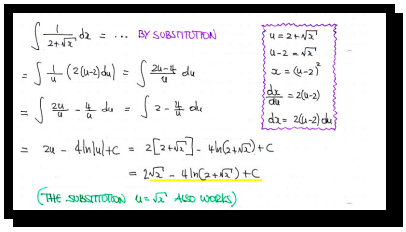
134. $\displaystyle\int (2x+1)\left(x^2+x+1\right)\ dx = \begin{bmatrix} \frac{1}{2}\left(x^2+x+1\right)^2 + C \\ \frac{1}{2}x^4 + x^3 + \frac{3}{2}x^2 + x + C \end{bmatrix}$



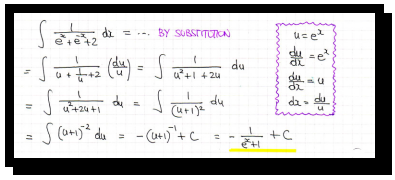
135. $\displaystyle\int (x+1)\cos\left(x^2+2x+1\right)\ dx = \frac{1}{2}\sin\left(x^2+2x+1\right) + C$



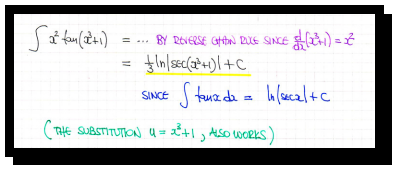
136. $\displaystyle\int \frac{1}{2+\sqrt{x}}\,dx = 2\sqrt{x} - 4\ln\left(2+\sqrt{x}\right) + C$



137. $\displaystyle\int \frac{1}{\mathrm{e}^{x}+\mathrm{e}^{-x}+2}\,dx = -\frac{1}{\mathrm{e}^{x}+1} + C$



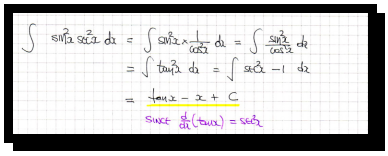
138. $\displaystyle\int x^2 \tan\left(x^3+1\right)\,dx = \frac{1}{3}\ln\left|\sec\left(x^3+1\right)\right| + C$



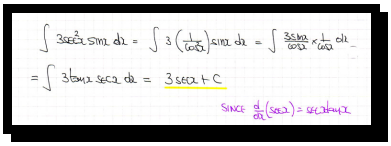
139. $\displaystyle\int x^3\ln\left(x^2+1\right)\,dx=\begin{bmatrix}\frac{1}{4}\left(x^2+1\right)\left(x^2-1\right)\ln\left(x^2+1\right)-\frac{1}{8}\left(x^2+1\right)\left(x^2-3\right)+C\\ \frac{1}{4}\left(x^4-1\right)\ln\left(x^2+1\right)-\frac{1}{8}x^2\left(x^2-2\right)+C\end{bmatrix}$



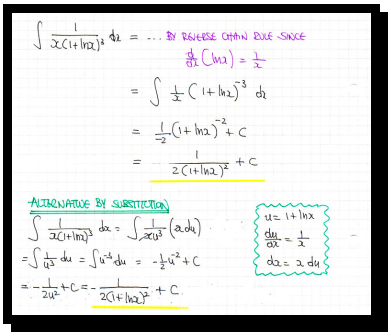
140. $\displaystyle\int \sin^2 x\sec^2 x\;dx=-x+\tan x+C$



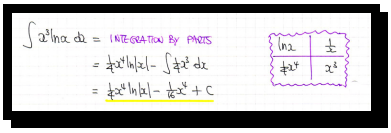
141. $\displaystyle\int 3\sec^2 x\sin x\;dx=3\sec x+C$



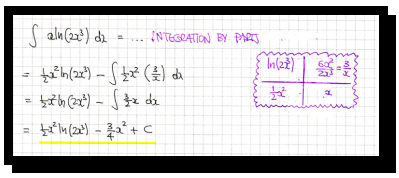
142. $\displaystyle\int \frac{1}{x(1+\ln x)^3}\,dx = -\frac{1}{2(1+\ln x)^2} + C$



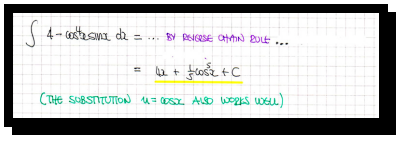
143. $\displaystyle\int x^3 \ln x\;dx = \frac{1}{4}x^4 \ln|x| - \frac{1}{16}x^4 + C$



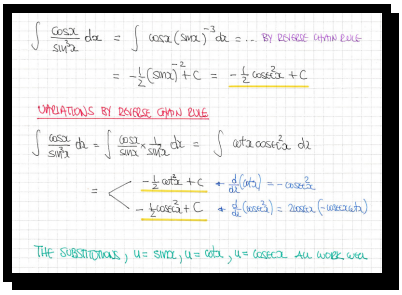
144. $\displaystyle\int x\ln\left(2x^3\right)\,dx = \frac{1}{2}x^2 \ln\left|2x^3\right| - \frac{3}{4}x^2 + C$



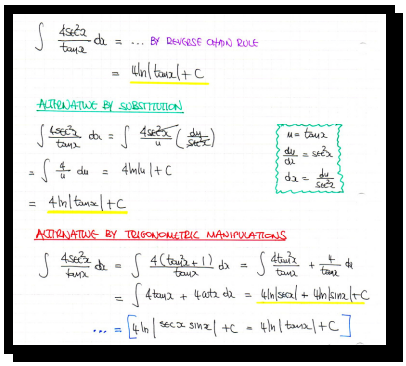
145. $\displaystyle\int 4 - \cos^4 x \sin x\;dx = 4x + \frac{1}{5}\cos^5 x + C$



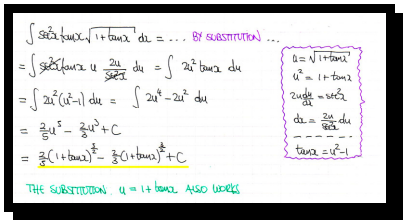
146. $$\int \frac{\cos x}{\sin^3 x}\,dx = \begin{bmatrix} -\frac{1}{2}\cot^2 x + C \\ -\frac{1}{2}\operatorname{cosec}^2 x + C \end{bmatrix}$$



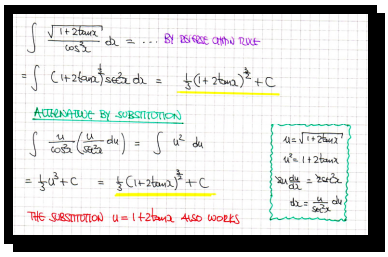
147. $$\int \frac{4\sec^2 x}{\tan x}\,dx = \begin{bmatrix} 4\ln|\tan x| + C \\ 4\ln|\sec x| + 4\ln|\sin x| + C \end{bmatrix}$$



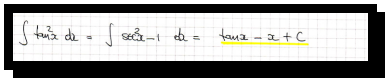
148. $$\int \sec^2 x \tan x \sqrt{1+\tan x}\,dx = \frac{2}{5}(1+\tan x)^{\frac{5}{2}} - \frac{2}{3}(1+\tan x)^{\frac{3}{2}} + C$$



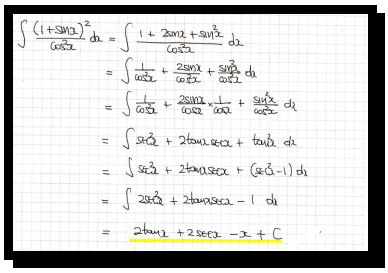
149. $\displaystyle\int \frac{\sqrt{1+2\tan x}}{\cos^2 x}\,dx = \frac{1}{3}(1+2\tan x)^{\frac{3}{2}} + C$



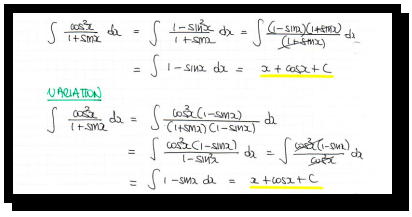
150. $\displaystyle\int \tan^2 x\ dx = -x + \tan x + C$



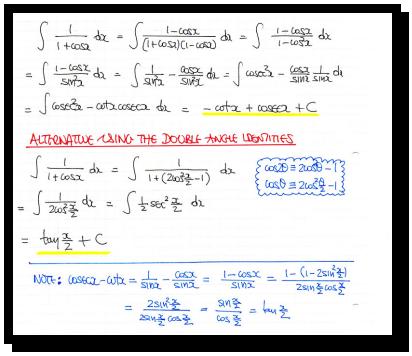
151. $\displaystyle\int \frac{(1+\sin x)^2}{\cos^2 x}\,dx = -x + 2\tan x + 2\sec x + C$



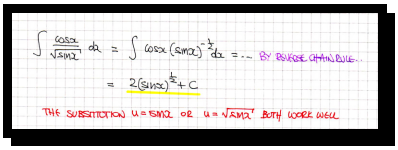
152. $\displaystyle\int \frac{\cos^2 x}{1+\sin x}\,dx = x + \cos x + C$



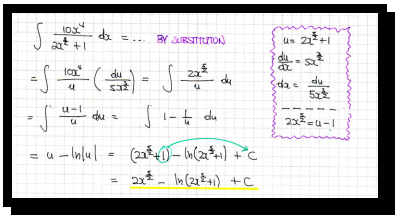
153. $$\int \frac{1}{1+\cos x}\,dx = \begin{bmatrix} \operatorname{cosec} x - \cot x + C \\ \tan\left(\frac{1}{2}x\right) + C \end{bmatrix}$$



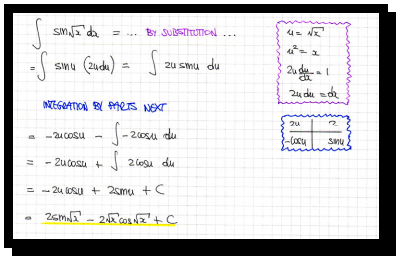
154. $$\int \frac{\cos x}{\sqrt{\sin x}}\,dx = 2\sqrt{\sin x} + C$$



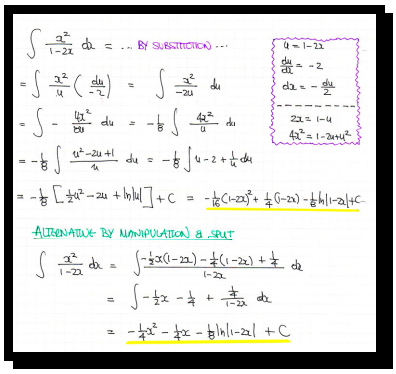
155. $$\int \frac{10x^4}{2x^{\frac{5}{2}}+1}\,dx = 2x^{\frac{5}{2}} - \ln\left(2x^{\frac{5}{2}}+1\right) + C$$



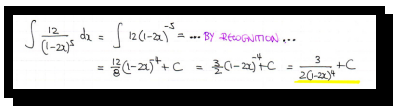
156. $\displaystyle\int \sin\sqrt{x}\ dx = 2\sin\sqrt{x} - 2\sqrt{x}\cos\sqrt{x} + C$



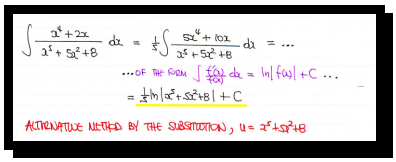
157. $\displaystyle\int \frac{x^2}{1-2x}\ dx = \begin{bmatrix} -\frac{1}{16}(1-2x)^2 + \frac{1}{4}(1-2x) - \frac{1}{8}\ln|1-2x| + C \\ -\frac{1}{4}x^2 - \frac{1}{4}x - \frac{1}{8}\ln|1-2x| + C \end{bmatrix}$



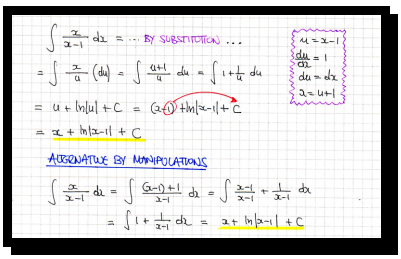
158. $\displaystyle\int \frac{12}{(1-2x)^5}\ dx = \frac{3}{2(1-2x)^4} + C$



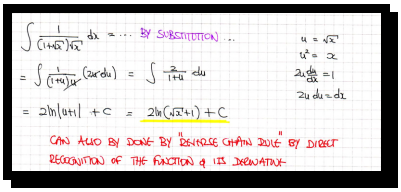
159. $\displaystyle\int \frac{x^4+2x}{x^5+5x^2+8}\,dx=\frac{1}{5}\ln\left|x^5+5x^2+8\right|+C$



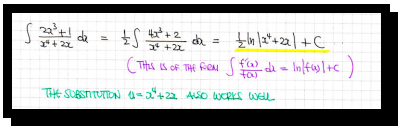
160. $\displaystyle\int \frac{x}{x-1}\,dx=x+\ln\left|x-1\right|+C$



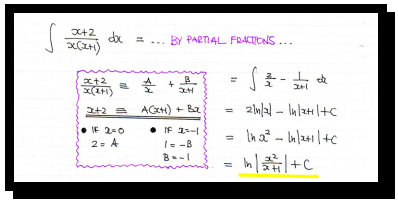
161. $\displaystyle\int \frac{1}{\left(1+\sqrt{x}\right)\sqrt{x}}\,dx=2\ln\left(1+\sqrt{x}\right)+C$



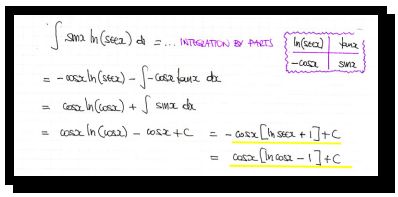
162. $\displaystyle\int \frac{2x^3+1}{x^4+2x}\,dx=\frac{1}{2}\ln\left|x^4+2x\right|+C$



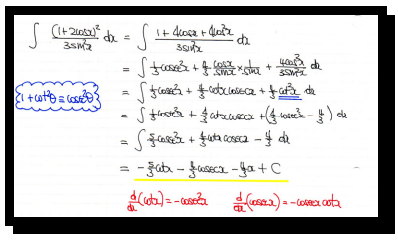
163. $\displaystyle\int \frac{x+2}{x(x+1)}\,dx = \ln\left|\frac{x^2}{x+1}\right| + C$



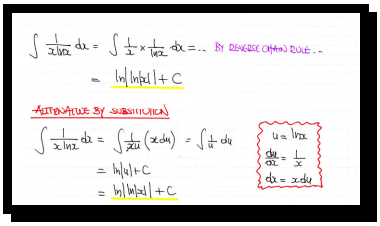
164. $\displaystyle\int \sin x \ln(\sec x)\,dx = \begin{bmatrix} -\left[1+\ln|\sec x|\right]\cos x \\ \left[-1+\ln|\cos x|\right]\cos x \end{bmatrix} + C$



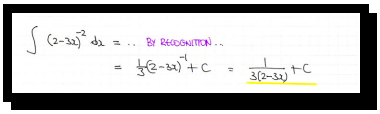
165. $\displaystyle\int \frac{(1+2\cos x)^2}{3\sin^2 x}\,dx = -\frac{5}{3}\cot x - \frac{4}{3}\operatorname{cosec} x - \frac{4}{3}x + C$



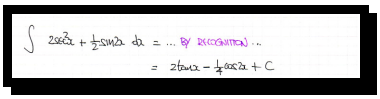
166. $\displaystyle\int \frac{1}{x\ln x}\,dx = \ln\left|\ln|x|\right| + C$



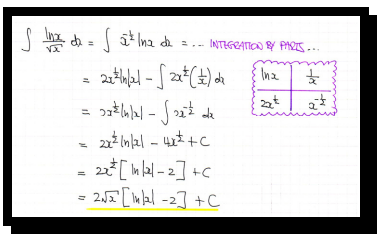
167. $\displaystyle\int (2-3x)^{-2}\,dx = \frac{1}{3(2-3x)} + C$



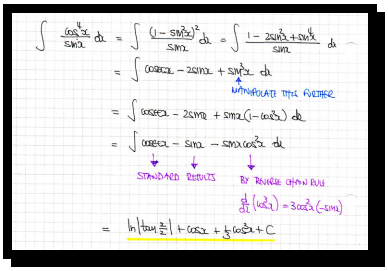
168. $\displaystyle\int 2\sec^2 x + \frac{1}{2}\sin 2x\,dx = 2\tan x - \frac{1}{4}\cos 2x + C$



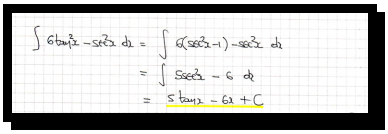
169. $\displaystyle\int \frac{\ln x}{\sqrt{x}}\,dx = 2\sqrt{x}\left[\ln|x| - 2\right] + C$



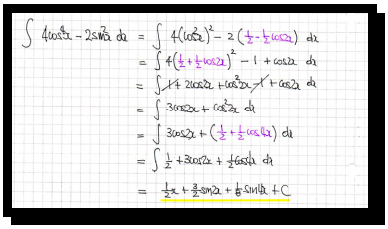
170. $\displaystyle\int \frac{\cos^4 x}{\sin x}\,dx = \ln\left|\tan\left(\frac{1}{2}x\right)\right| + \cos x + \frac{1}{3}\cos^3 x + C$



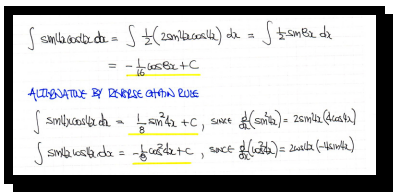
171. $\displaystyle\int 6\tan^2 x - \sec^2 x\,dx = 5\tan x - 6x + C$



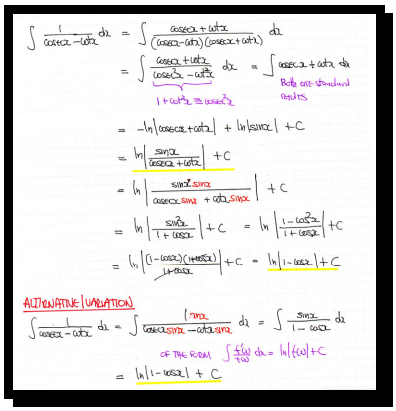
172. $\displaystyle\int 6\cos^4 x - 2\sin^2 x\,dx = \frac{1}{2}x + \frac{3}{2}\sin 2x + \frac{1}{8}\sin 4x + C$



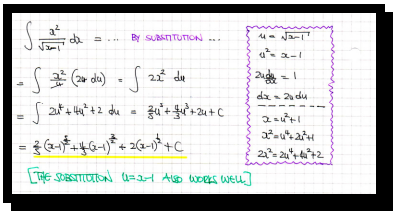
173. $$\int \sin 4x\cos 4x\ dx = \begin{bmatrix} -\frac{1}{16}\cos 8x + C \\ \frac{1}{8}\sin^2 4x + C \\ -\frac{1}{8}\cos^2 4x + C \end{bmatrix}$$



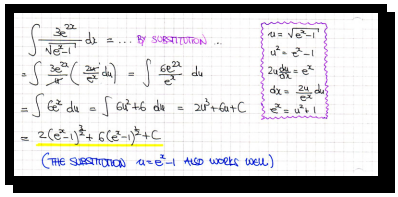
174. $$\int \frac{1}{\operatorname{cosec} x - \cot x}\ dx = \begin{bmatrix} \ln\left|\dfrac{\sin x}{\operatorname{cosec} x + \cot x}\right| + C \\ \ln|1-\cos x| + C \end{bmatrix}$$



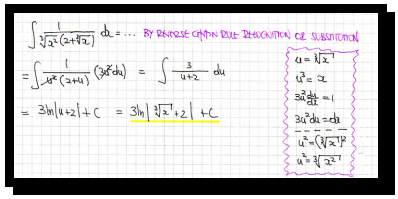
175. $$\int \frac{x^2}{\sqrt{x-1}}\ dx = \frac{2}{5}(x-1)^{\frac{5}{2}} + \frac{4}{3}(x-1)^{\frac{3}{2}} + 2(x-1)^{\frac{1}{2}} + C$$



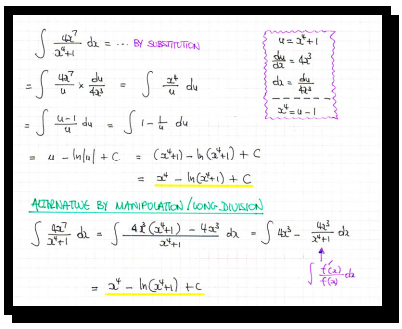
176. $$\int \frac{3\mathrm{e}^{2x}}{\sqrt{\mathrm{e}^{x}-1}}\,dx = 2\left(\mathrm{e}^{x}-1\right)^{\frac{3}{2}} + 6\left(\mathrm{e}^{x}-1\right)^{\frac{1}{2}} + C$$



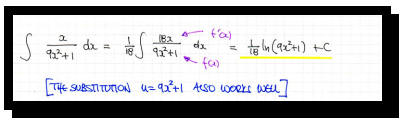
177. $$\int \frac{1}{\left(2+\sqrt[3]{x}\right)\sqrt[3]{x^2}}\,dx = 3\ln\left|2+\sqrt[3]{x}\right| + C$$



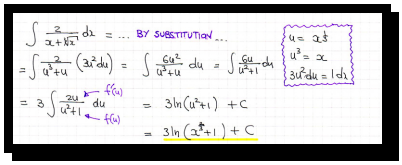
178. $$\int \frac{4x^7}{x^4+1}\,dx = x^4 - \ln\left(x^4+1\right) + C$$



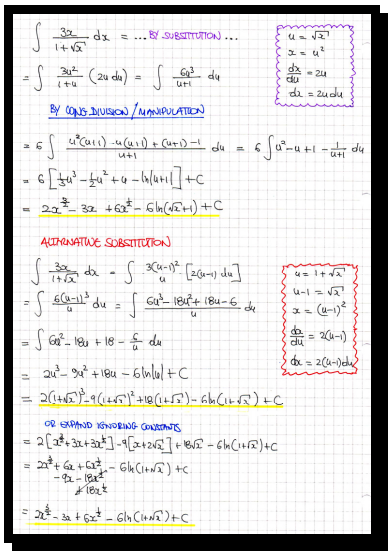
179. $$\int \frac{x}{9x^2+1}\,dx = \frac{1}{18}\ln\left(9x^2+1\right) + C$$



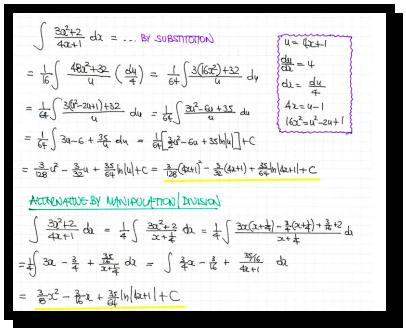
180. $\displaystyle\int \frac{2}{x+\sqrt[3]{x}}\,dx = 3\ln\left|x+\sqrt[3]{x}\right| + C$



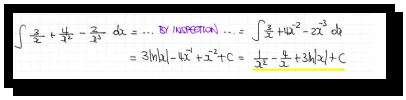
181. $\displaystyle\int \frac{3x}{1+\sqrt{x}}\,dx = \begin{bmatrix} 2x^{\frac{3}{2}} - 3x + 6x^{\frac{1}{2}} - 6\ln\left|1+\sqrt{x}\right| + C \\ 2\left(1+\sqrt{x}\right)^3 - 9\left(1+\sqrt{x}\right)^2 + 18\left(1+\sqrt{x}\right) - 6\ln\left|1+\sqrt{x}\right| + C \end{bmatrix}$



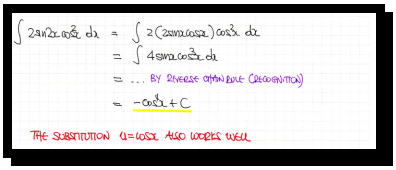
182. $\displaystyle\int \frac{3x^2+2}{4x+1}\,dx = \begin{bmatrix} \frac{3}{8}x^2 - \frac{3}{16}x + \frac{35}{64}\ln\left|4x+1\right| + C \\ \frac{3}{128}(4x+1)^2 - \frac{3}{32}(4x+1) + \frac{35}{64}\ln\left|4x+1\right| + C \end{bmatrix}$



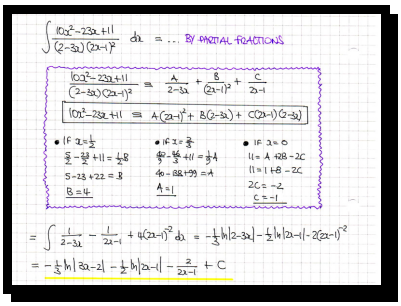
183. $\displaystyle\int \frac{3}{x}+\frac{4}{x^2}-\frac{2}{x^3}\,dx=\frac{1}{x^2}-\frac{4}{x}+3\ln|x|+C$



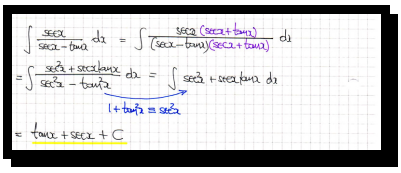
184. $\displaystyle\int 2\sin 2x\cos^2 x\,dx=-\cos^4 x+C$



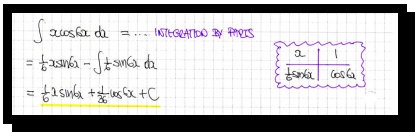
185. $\displaystyle\int \frac{10x^2-23x+11}{(2-3x)(2x-1)^2}\,dx=-\frac{1}{3}\ln|3x-2|-\frac{1}{2}\ln|2x-1|-\frac{2}{2x-1}+C$



186. $\displaystyle\int \frac{\sec x}{\sec x-\tan x}\,dx=\tan x+\sec x+C$



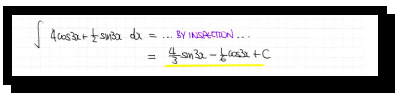
187. $\displaystyle\int x\cos 6x\ dx=\frac{1}{6}x\sin 6x+\frac{1}{36}\cos 6x+C$



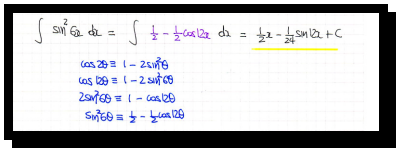
188. $\displaystyle\int \sin x\sin 3x\ dx=\begin{bmatrix}\frac{1}{4}\sin 2x-\frac{1}{8}\sin 4x+C\\ \frac{1}{8}\cos x\sin 3x-\frac{3}{8}\sin x\cos 3x+C\end{bmatrix}$



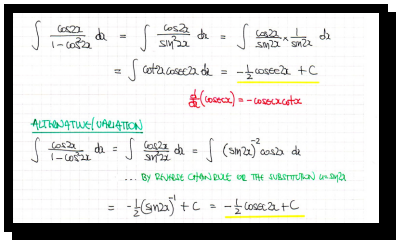
189. $\displaystyle\int 4\cos 3x+\frac{1}{2}\sin 3x\ dx=\frac{4}{3}\sin 3x-\frac{1}{6}\cos 3x+C$



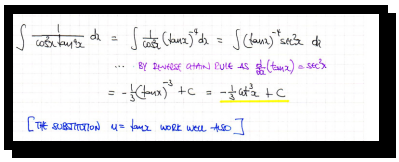
190. $\displaystyle\int \sin^2 6x \ dx = \frac{1}{2}x - \frac{1}{24}\sin 12x + C$



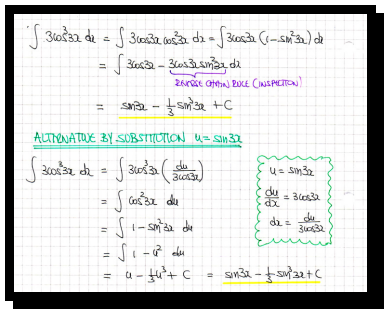
191. $\displaystyle\int \frac{\cos 2x}{1-\cos^2 2x} \ dx = -\frac{1}{2}\operatorname{cosec} 2x + C$



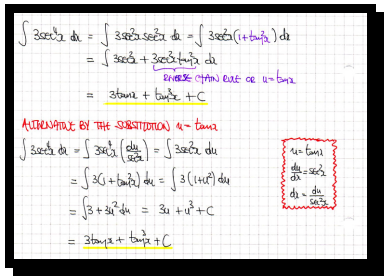
192. $\displaystyle\int \frac{1}{\cos^2 x \tan^2 x} \ dx = -\frac{1}{3}\cot^3 x + C$



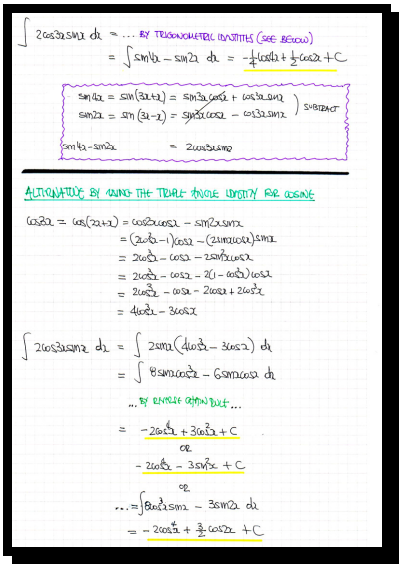
193. $\displaystyle\int 3\cos^3 3x \ dx = \sin 3x - \frac{1}{3}\sin^3 3x + C$

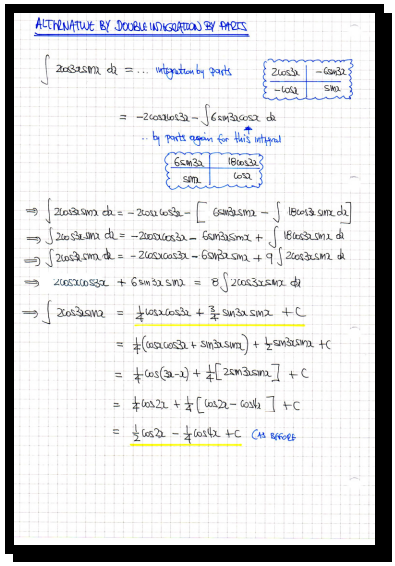


194. $\displaystyle\int 3\sec^4 x \ dx = 3\tan x + \tan^3 x + C$

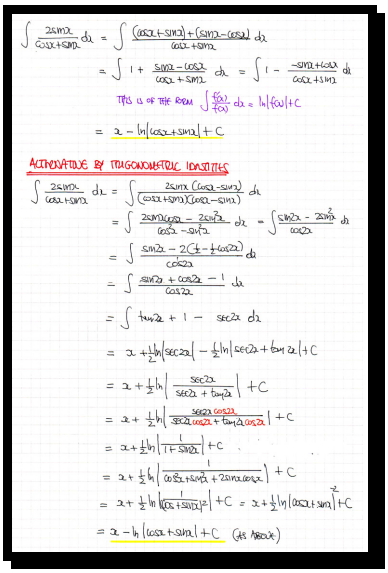


195. $\displaystyle\int 2\sin x\cos 3x \ dx = \begin{bmatrix} \frac{1}{2}\cos 2x - \frac{1}{4}\cos 4x + C \\ -2\cos^4 x + 3\cos^2 x + C \\ -2\cos^4 x - 3\sin^2 x + C \\ -2\cos^4 x + \frac{3}{2}\cos 2x + C \\ \frac{1}{4}\cos x\cos 3x + \frac{3}{4}\sin x\sin 3x + C \end{bmatrix}$

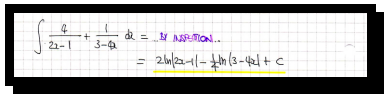




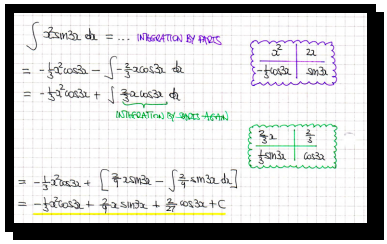
196. $$\int \frac{2\sin x}{\cos x+\sin x}\,dx=\begin{bmatrix} x-\ln\left|\cos x+\sin x\right|+C \\ x+\frac{1}{2}\ln\left|\sec 2x\right|-\frac{1}{2}\ln\left|\sec 2x+\tan 2x\right|+C \end{bmatrix}$$



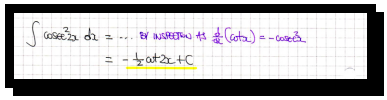
197. $$\int \frac{4}{2x-1}+\frac{1}{3-4x}\,dx=2\ln\left|2x-1\right|-\frac{1}{4}\ln\left|3-4x\right|+C$$



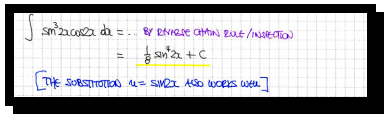
198. $$\int x^2\sin 3x\,\,dx=-\frac{1}{3}x^2\cos 3x+\frac{2}{9}x\sin 3x+\frac{2}{27}\cos 3x+C$$



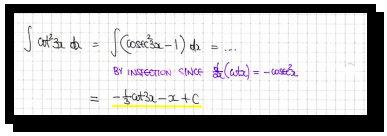
199. $\displaystyle\int \operatorname{cosec}^2 2x \ dx = -\frac{1}{2}\cot 2x + C$



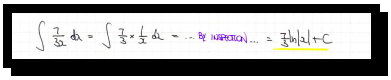
200. $\displaystyle\int \sin^3 2x \cos 2x \ dx = \frac{1}{8}\sin^4 2x + C$



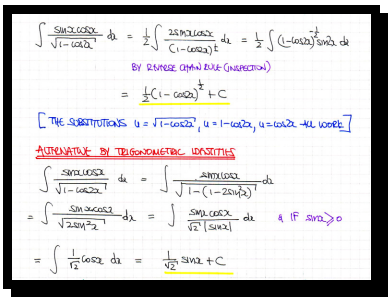
201. $\displaystyle\int \cot^2 3x \ dx = -x - \frac{1}{3}\cot 3x + C$



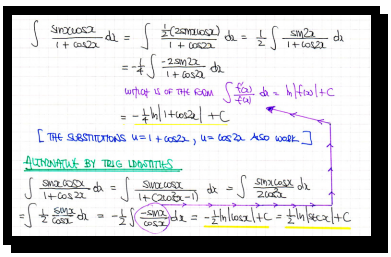
202. $\displaystyle\int \frac{7}{3x} \ dx = \frac{7}{3}\ln|x| + C$



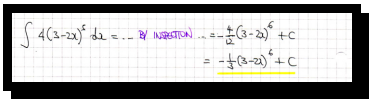
203. $$\int \frac{\sin x\cos x}{\sqrt{1-\cos 2x}}\,dx=\begin{bmatrix}\frac{1}{2}\sqrt{1-\cos 2x}+C\\ \frac{1}{\sqrt{2}}\sin x+C\end{bmatrix}$$



204. $$\int \frac{\sin x\cos x}{1+\cos 2x}\,dx=\begin{bmatrix}-\frac{1}{4}\ln|1+\cos 2x|+C\\ -\frac{1}{2}\ln|\cos x|+C\\ \frac{1}{2}\ln|\sec x|+C\end{bmatrix}$$



205. $$\int 4(3-2x)^5\,dx=-\frac{1}{3}(3-2x)^6+C$$



206. $\displaystyle\int \frac{1+\sin x}{\cos x}\,dx = \begin{bmatrix} \ln\left|\sec^2 x+\sec x\tan x\right|+C \\ -\ln\left|1-\sin x\right|+C \end{bmatrix}$

$\int \frac{1+\sin x}{\cos x}\,dx = \int \frac{1}{\cos x}+\frac{\sin x}{\cos x}\,dx = \int \sec x+\tan x\,dx$

... "STANDARD RESULTS"...

$= \ln|\sec x+\tan x| + \ln|\sec x| + C$

$= \ln|\sec^2 x+\sec x\tan x| + C$

OR TIDY FURTHER

$= \ln\left|\frac{1}{\cos^2 x}+\frac{\sin x}{\cos^2 x}\right| + C = \ln\left|\frac{1+\sin x}{\cos^2 x}\right| + C$

$= \ln\left|\frac{1+\sin x}{1-\sin^2 x}\right| + C = \ln\left|\frac{1+\sin x}{(1-\sin x)(1+\sin x)}\right| + C$

$= \ln\left|\frac{1}{1-\sin x}\right| + C = -\ln|1-\sin x| + C$

ALTERNATIVE BY TRIGONOMETRIC MANIPULATIONS

$\int \frac{1+\sin x}{\cos x}\,dx = \int \frac{(1+\sin x)(1-\sin x)}{\cos x(1-\sin x)}\,dx = \int \frac{1-\sin^2 x}{\cos x(1-\sin x)}\,dx$

$= \int \frac{\cos^2 x}{\cos x(1-\sin x)}\,dx = \int \frac{\cos x}{1-\sin x}\,dx$

$= -\int \frac{-\cos x}{1-\sin x}\,dx = -\ln|1-\sin x| + C$

[WHAT IS OF THE FORM $\int \frac{f'(x)}{f(x)}\,dx = \ln|f(x)| + C$]

207. $\displaystyle\int \sin 2x\sec x\;dx = -2\cos x + C$

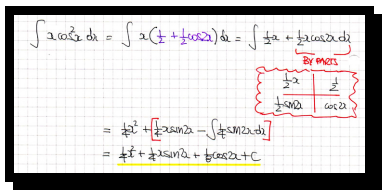
$\int \sin 2x\sec x\,dx = \int (2\sin x\cos x)\times\frac{1}{\cos x}\,dx = \int 2\sin x\,dx$

$= -2\cos x + C$

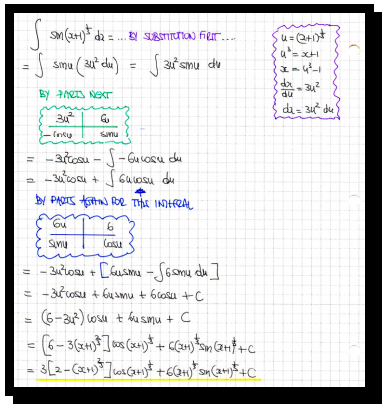
208. $\displaystyle\int \sin 2x \sin x \ dx = \begin{bmatrix} \frac{2}{3}\sin^3 x + C \\ \frac{1}{2}\sin x - \frac{1}{6}\sin 3x + C \\ \frac{1}{2}\cos x \sin 2x - \frac{2}{3}\sin x \cos 2x + C \end{bmatrix}$



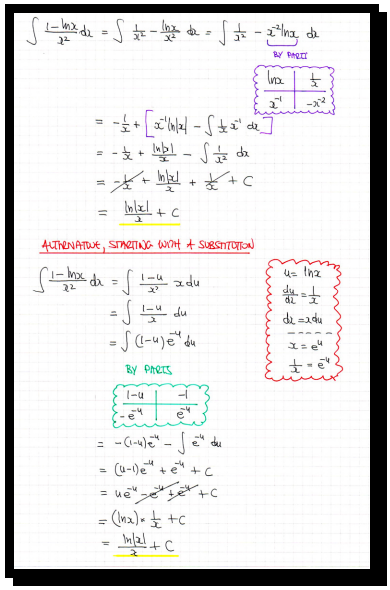
209. $\displaystyle\int x\cos^2 x \ dx = \frac{1}{4}x^2 + \frac{1}{4}x\sin 2x + \frac{1}{8}\cos 2x + C$



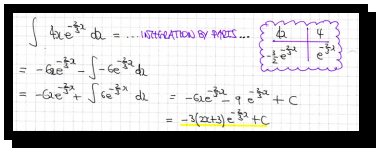
210. $\displaystyle\int \sin\left(x+1\right)^{\frac{1}{3}}\,dx=3\left[2-\left(x+1\right)^{\frac{2}{3}}\right]\cos\left(x+1\right)^{\frac{1}{3}}+6\left(x+1\right)^{\frac{1}{3}}\sin\left(x+1\right)^{\frac{1}{3}}+C$



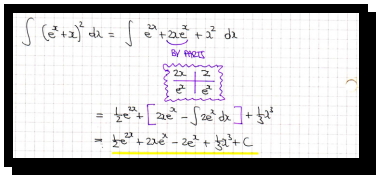
211. $\displaystyle\int \frac{1-\ln x}{x^2}\,dx=\frac{\ln|x|}{x}+C$



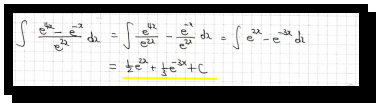
212. $\displaystyle\int 4xe^{-\frac{2}{3}x}\,dx=-3\left(2x+3\right)e^{-\frac{2}{3}x}+C$



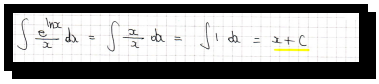
213. $\displaystyle\int \left(\mathrm{e}^{x}+x\right)^{2}\,dx=\frac{1}{2}\mathrm{e}^{2x}+2x\mathrm{e}^{x}-2\mathrm{e}^{x}+\frac{1}{3}x^{3}+C$



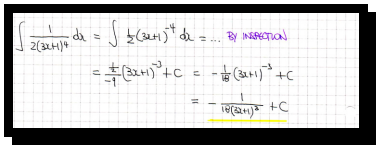
214. $\displaystyle\int \frac{\mathrm{e}^{4x}-\mathrm{e}^{-x}}{\mathrm{e}^{2x}}\,dx=\frac{1}{2}\mathrm{e}^{2x}+\frac{1}{3}\mathrm{e}^{-3x}+C$



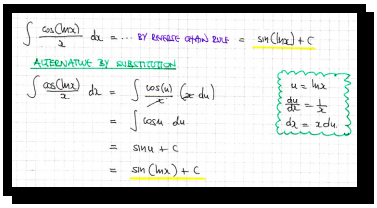
215. $\displaystyle\int \frac{\mathrm{e}^{\ln x}}{x}\,dx=x+C$



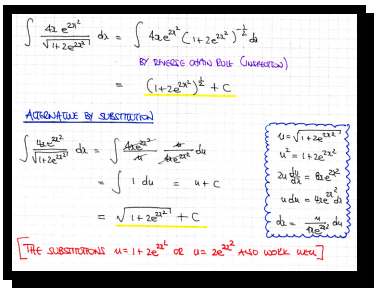
216. $\displaystyle\int \frac{1}{2(3x+1)^{4}}\,dx=-\frac{1}{18(3x+1)^{3}}+C$



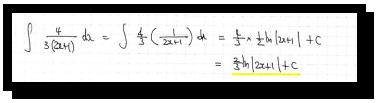
217. $\displaystyle\int \frac{\cos(\ln x)}{x}\,dx = \sin(\ln x) + C$



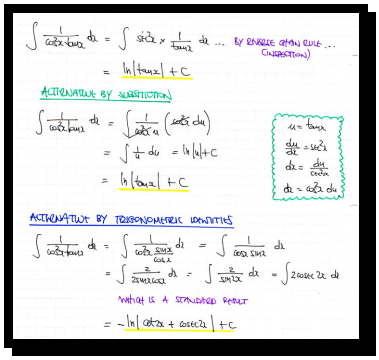
218. $\displaystyle\int \frac{4xe^{2x^2}}{\sqrt{1+2e^{2x^2}}}\,dx = \sqrt{1+2e^{2x^2}} + C$



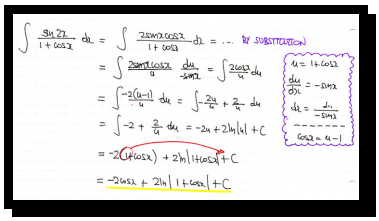
219. $\displaystyle\int \frac{4}{3(2x+1)}\,dx = \frac{2}{3}\ln|2x+1| + C$



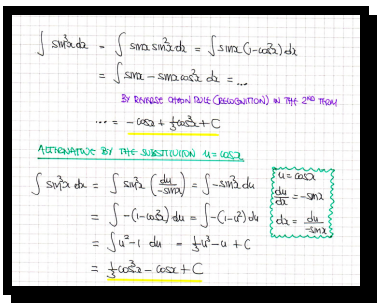
220. $$\int \frac{1}{\cos^2 x \tan x}\, dx = \begin{bmatrix} \ln|\tan x| + C \\ -\ln|\cot 2x + \operatorname{cosec} 2x| + C \end{bmatrix}$$



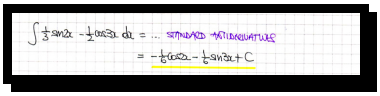
221. $$\int \frac{\sin 2x}{1+\cos x}\, dx = -2\cos x + 2\ln|1+\cos x| + C$$



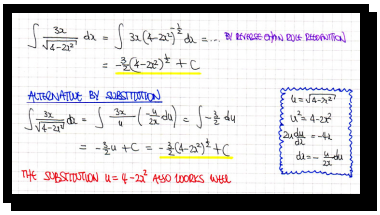
222. $$\int \sin^3 x \; dx = \frac{1}{3}\cos^2 x - \cos x + C$$



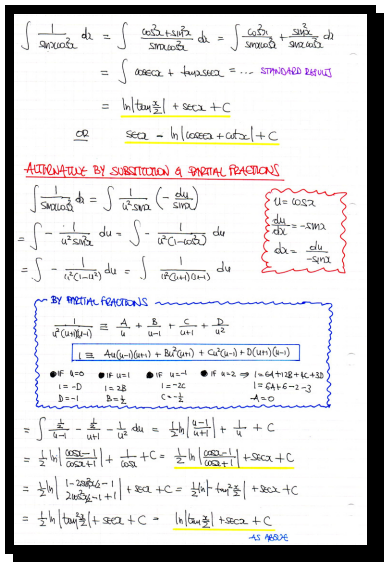
223. $\displaystyle\int \frac{1}{3}\sin 2x-\frac{1}{2}\cos 3x\ dx=-\frac{1}{6}\cos 2x-\frac{1}{6}\sin 3x+C$



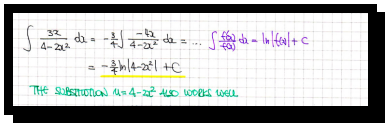
224. $\displaystyle\int \frac{3x}{\sqrt{4-2x^2}}\ dx=-\frac{3}{2}\left(4-2x^2\right)^{\frac{1}{2}}+C$



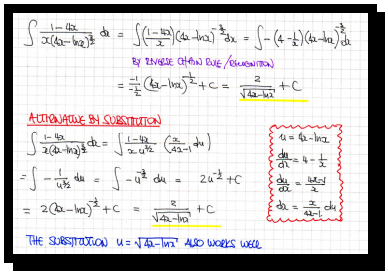
225. $\displaystyle\int \frac{1}{\sin x\cos^2 x}\ dx=\begin{bmatrix} \ln\left|\tan\left(\frac{1}{2}x\right)\right|+\sec x+C \\ \sec x-\ln\left|\operatorname{cosec}x+\cot x\right|+C \\ \frac{1}{2}\ln\left|\dfrac{\cos x-1}{\cos x+1}\right|+\sec x+C \end{bmatrix}$



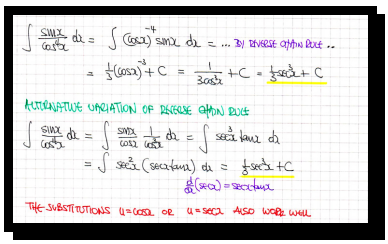
226. $\displaystyle\int \frac{3x}{4-2x^2}\,dx = -\frac{3}{4}\ln\left|4-2x^2\right| + C$



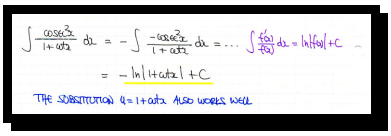
227. $\displaystyle\int \frac{1-4x}{x(4x-\ln x)^{\frac{3}{2}}}\,dx = \frac{2}{\sqrt{4x-\ln x}} + C$



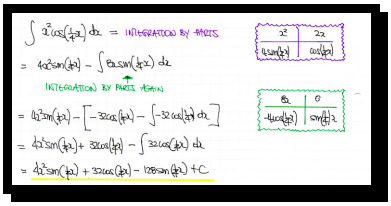
228. $\displaystyle\int \frac{\sin x}{\cos^4 x}\,dx = \frac{1}{3}\sec^3 x + C$



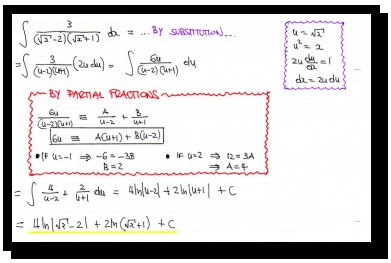
229. $\displaystyle\int \frac{\operatorname{cosec}^2 x}{1+\cot x}\,dx = -\ln\left|1+\cot x\right| + C$



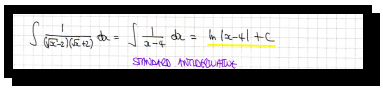
230. $\displaystyle\int x^2\cos\left(\frac{1}{4}x\right)\,dx = 4x^2\sin\left(\frac{1}{4}x\right)+32\cos\left(\frac{1}{4}x\right)-128\sin\left(\frac{1}{4}x\right)+C$



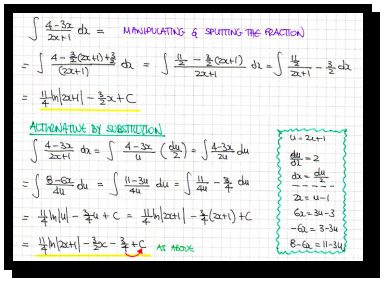
231. $\displaystyle\int \frac{3}{\left(\sqrt{x}-2\right)\left(\sqrt{x}+1\right)}\,dx = 4\ln\left|\sqrt{x}-2\right|+2\ln\left(\sqrt{x}+1\right)+C$



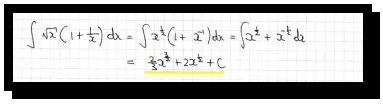
232. $\displaystyle\int \frac{1}{\left(\sqrt{x}-2\right)\left(\sqrt{x}+2\right)}\,dx = \ln\left|x-4\right|+C$



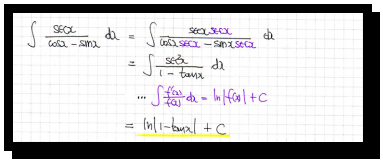
233. $\displaystyle\int \frac{4-3x}{2x+1}\,dx = \frac{11}{4}\ln\left|2x+1\right|-\frac{3}{2}x+C$



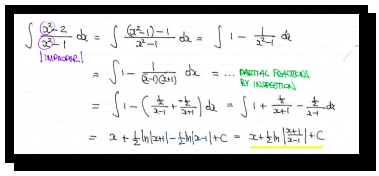
234. $\displaystyle\int \left(1+\frac{1}{x}\right)\sqrt{x}\ dx=\frac{2}{3}x^{\frac{3}{2}}+2x^{\frac{1}{2}}+C$



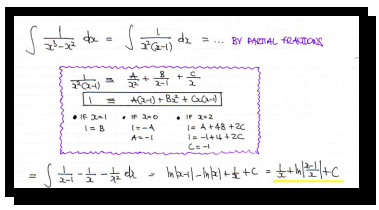
235. $\displaystyle\int \frac{\sec x}{\cos x-\sin x}\ dx=\ln\left|1-\tan x\right|+C$



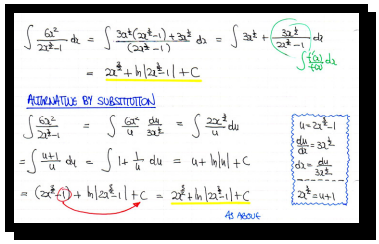
236. $\displaystyle\int \frac{x^2-2}{x^2-1}\ dx=x+\frac{1}{2}\ln\left|\frac{x+1}{x-1}\right|+C$



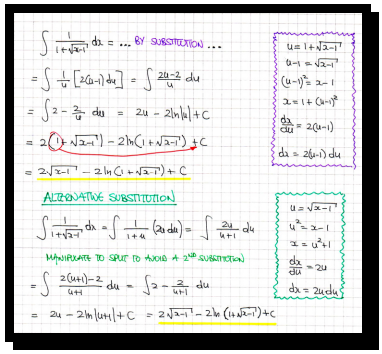
237. $\displaystyle\int \frac{1}{x^3-x^2}\ dx=\frac{1}{x}+\ln\left|\frac{x-1}{x}\right|+C$



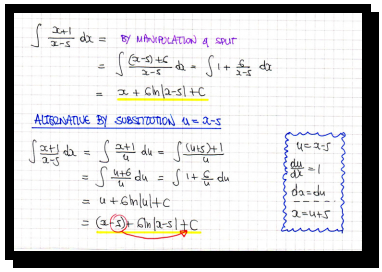
238. $$\int \frac{6x^2}{2x^{\frac{3}{2}}-1}\,dx = 2x^{\frac{3}{2}} + \ln\left|2x^{\frac{3}{2}}-1\right| + C$$



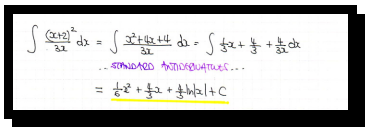
239. $$\int \frac{1}{1+\sqrt{x-1}}\,dx = 2\sqrt{x-1} - 2\ln\left(1+\sqrt{x-1}\right) + C$$



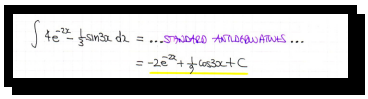
240. $$\int \frac{x+1}{x-5}\,dx = x + 6\ln\left|x-5\right| + C$$



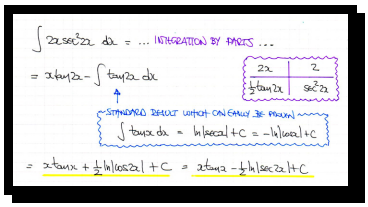
241. $\displaystyle\int \frac{(x+2)^2}{3x}\,dx = \frac{1}{6}x^2+\frac{4}{3}x+\frac{4}{3}\ln|x|+C$



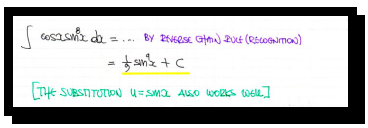
242. $\displaystyle\int 4\mathrm{e}^{-2x}-\frac{1}{3}\sin 3x\;\,dx = -2\mathrm{e}^{-2x}+\frac{1}{9}\cos 3x+C$



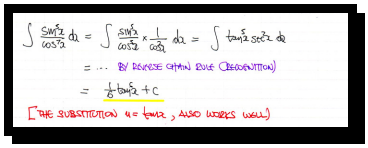
243. $\displaystyle\int 2x\sec^2 2x\;\,dx = \begin{bmatrix} x\tan x+\frac{1}{2}\ln|\cos 2x|+C \\ x\tan x-\frac{1}{2}\ln|\sec 2x|+C \end{bmatrix}$



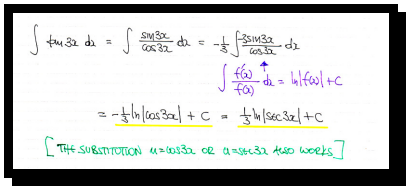
244. $\displaystyle\int \cos x\sin^8 x\;\,dx = \frac{1}{9}\sin^9 x+C$



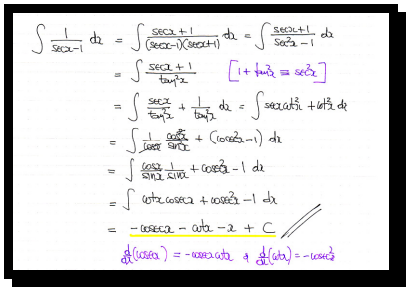
245. $\displaystyle\int \frac{\sin^5 x}{\cos^7 x}\,dx = \frac{1}{6}\tan^6 x + C$



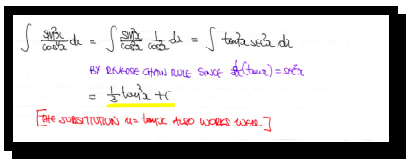
246. $\displaystyle\int \tan 3x\;dx = \begin{bmatrix} \frac{1}{3}\ln|\sec x| + C \\ -\frac{1}{3}\ln|\cos x| + C \end{bmatrix}$



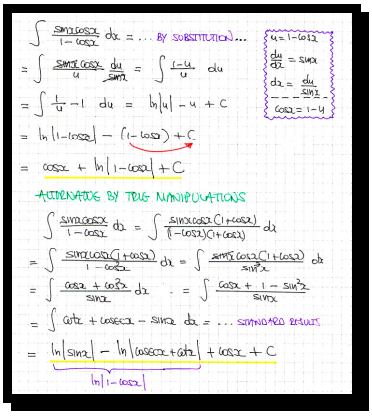
247. $\displaystyle\int \frac{1}{\sec x - 1}\,dx = -x - \cot x - \operatorname{cosec} x + C$



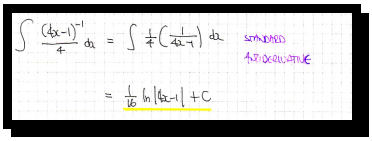
248. $\displaystyle\int \frac{\sin^2 x}{\cos^4 x}\,dx = \frac{1}{3}\tan^3 x + C$



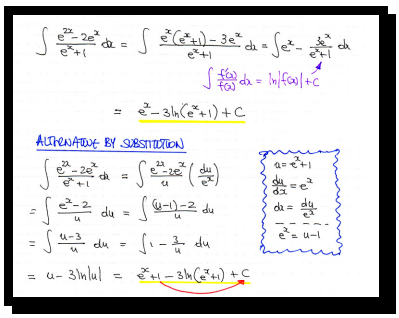
249. $\displaystyle\int \frac{\sin x\cos x}{1-\cos x}\,dx = \begin{bmatrix} \cos x+\ln\left|1-\cos x\right|+C \\ \cos x-\ln\left|\cot x+\operatorname{cosec} x\right|+C \end{bmatrix}$



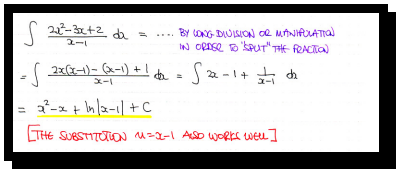
250. $\displaystyle\int \frac{(4x-1)^{-1}}{4}\,dx = -\frac{1}{16}\ln\left|4x-1\right|+C$



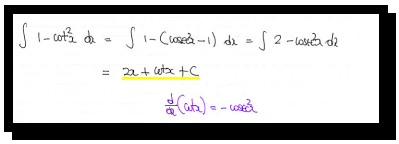
251. $\displaystyle\int \frac{\mathrm{e}^{2x}-2\mathrm{e}^{x}}{\mathrm{e}^{x}+1}\,dx = \mathrm{e}^{x}-3\ln\left(\mathrm{e}^{x}+1\right)+C$



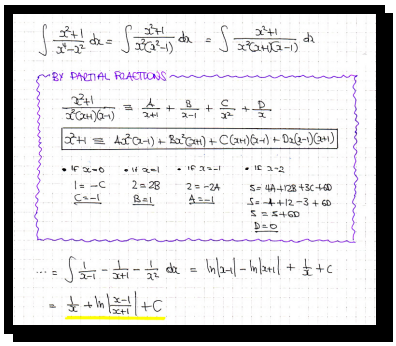
252. $\displaystyle\int \frac{2x^2-3x+2}{x-1}\,dx = x^2-x+\ln|x-1|+C$



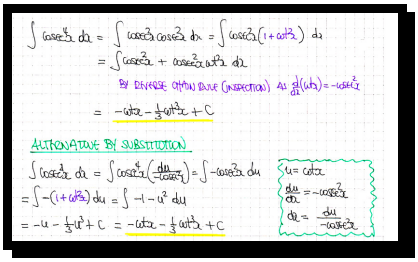
253. $\displaystyle\int 1-\cot^2 x\;\,dx = 2x+\cot x+C$



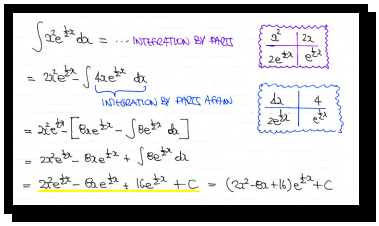
254. $\displaystyle\int \frac{x^2+1}{x^4-x^2}\,dx = \frac{1}{x}+\ln\left|\frac{x-1}{x+1}\right|+C$



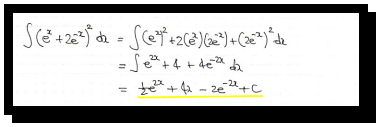
255. $\displaystyle\int \operatorname{cosec}^4 x \ dx = -\cot x - \frac{1}{3}\cot^3 x + C$



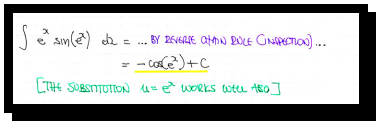
256. $\displaystyle\int x^2 \mathrm{e}^{\frac{1}{2}x}\ dx = 2x^2\mathrm{e}^{\frac{1}{2}x} - 8x\mathrm{e}^{\frac{1}{2}x} + 16\mathrm{e}^{\frac{1}{2}x} + C$



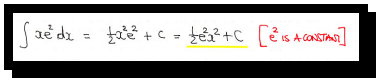
257. $\displaystyle\int \left(\mathrm{e}^x + 2\mathrm{e}^{-x}\right)^2\ dx = \frac{1}{2}\mathrm{e}^{2x} + 4x - 2\mathrm{e}^{-2x} + C$



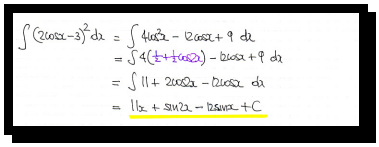
258. $\displaystyle\int \mathrm{e}^x \sin\left(\mathrm{e}^x\right)\ dx = -\cos\left(\mathrm{e}^x\right) + C$



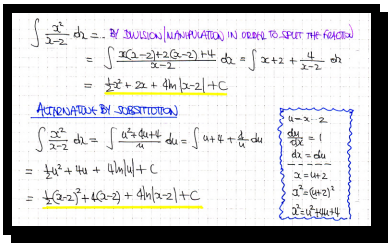
259. $\displaystyle\int x\mathrm{e}^2\ dx=\frac{1}{2}\mathrm{e}^2x^2+C$



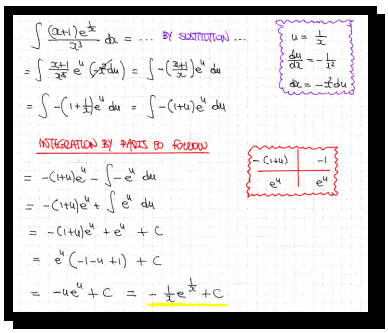
260. $\displaystyle\int\left(2\cos x-3\right)^2\ dx=11x+\sin 2x-12\sin x+C$



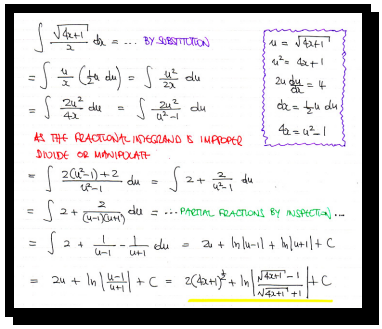
261. $\displaystyle\int\frac{x^2}{x-2}\ dx=\begin{bmatrix}\frac{1}{2}x^2+2x+4\ln\left|x-2\right|+C\\ \frac{1}{2}\left(x-2\right)^2+4\left(x-2\right)+4\ln\left|x-2\right|+C\end{bmatrix}$



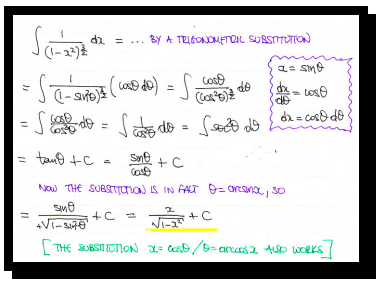
262. $\displaystyle\int\frac{\left(x+1\right)\mathrm{e}^{\frac{1}{x}}}{x^3}\ dx=-\frac{1}{x}\mathrm{e}^{\frac{1}{x}}+C$



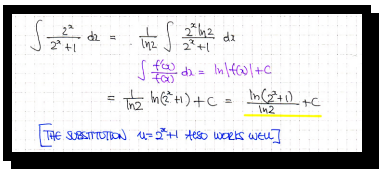
263. $$\int \frac{\sqrt{4x+1}}{x}\,dx = 2(4x-1)^{\frac{1}{2}} + \ln\left|\frac{\sqrt{4x+1}-1}{\sqrt{4x+1}+1}\right| + C$$



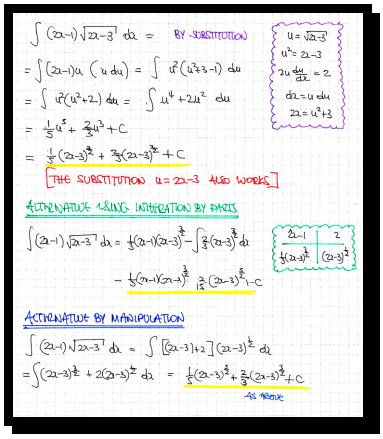
264. $$\int \frac{1}{\left(1-x^2\right)^{\frac{3}{2}}}\,dx = \frac{x}{\sqrt{1-x^2}} + C$$



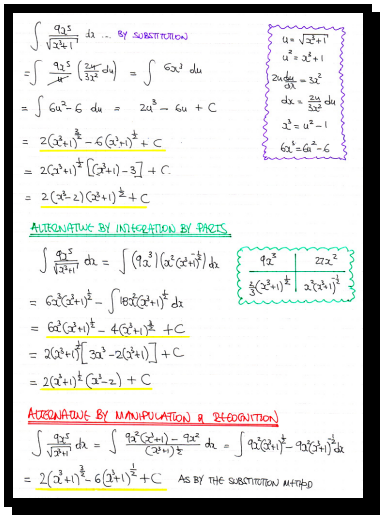
265. $$\int \frac{2^x}{2^x+1}\,dx = \frac{\ln\left(2^x+1\right)}{\ln 2} + C$$



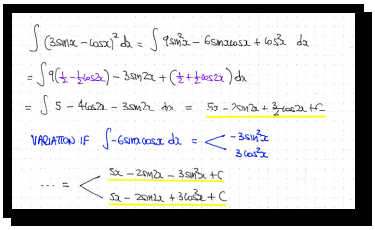
266. $$\int (2x-1)\sqrt{2x-3}\ dx = \begin{bmatrix} \frac{1}{5}(2x-3)^{\frac{5}{2}} + \frac{2}{3}(2x-3)^{\frac{3}{2}} + C \\ \frac{1}{3}(2x-1)(2x-3)^{\frac{3}{2}} - \frac{2}{15}(2x-3)^{\frac{5}{2}} + C \end{bmatrix}$$



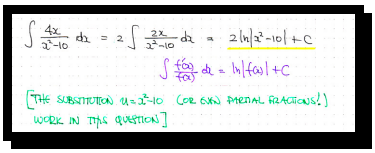
267. $$\int \frac{9x^5}{\sqrt{x^3+1}}\ dx = \begin{bmatrix} 2\left(x^3+1\right)^{\frac{3}{2}} - 6\left(x^3+1\right)^{\frac{1}{2}} + C \\ 2x^3\left(x^3+1\right)^{\frac{1}{2}} - 4\left(x^3+1\right)^{\frac{3}{2}} + C \\ 2\left(x^3-2\right)\left(x^3+1\right)^{\frac{1}{2}} + C \end{bmatrix}$$



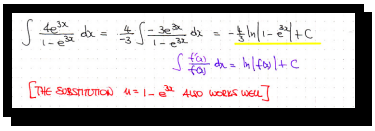
268. $\displaystyle\int (3\sin x-\cos x)^2\ dx=\begin{bmatrix} 5x-\sin 2x+\frac{3}{2}\cos 2x+C \\ 5x-\sin 2x-3\sin^2 x+C \\ 5x-\sin 2x+3\cos^2 x+C \end{bmatrix}$



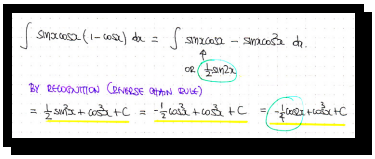
269. $\displaystyle\int \frac{4x}{x^2-10}\ dx=2\ln\left|x^2-10\right|+C$



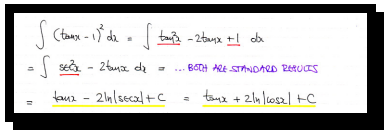
270. $\displaystyle\int \frac{4e^{3x}}{1-e^{3x}}\ dx=-\frac{4}{3}\ln\left|1-e^{3x}\right|+C$



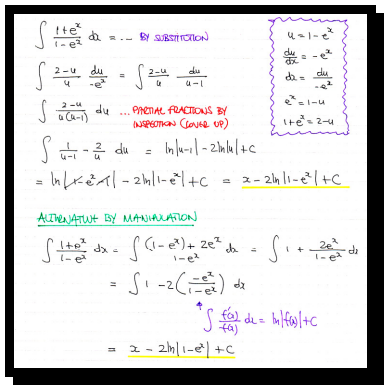
271. $\displaystyle\int (1-\cos x)\sin x\cos x\ dx=\begin{bmatrix} \cos^3 x-\frac{1}{4}\cos 2x+C \\ \cos^3 x-\frac{1}{2}\cos^2 x+C \\ \cos^3 x+\frac{1}{2}\sin^2 x+C \end{bmatrix}$



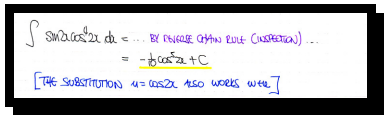
272. $\displaystyle\int (\tan x-1)^2\ dx=\begin{bmatrix}\tan x-2\ln|\sec x|+C\\ \tan x+2\ln|\cos x|+C\end{bmatrix}$



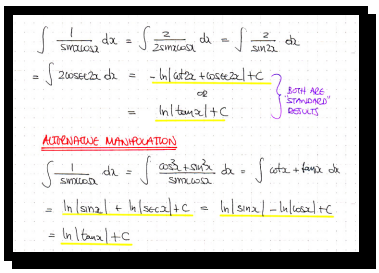
273. $\displaystyle\int \frac{1+\mathrm{e}^x}{1-\mathrm{e}^x}\ dx=x-2\ln\left|1-\mathrm{e}^x\right|+C$



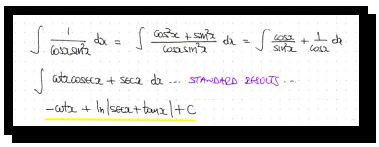
274. $\displaystyle\int \sin 2x\cos^4 2x\ dx=-\frac{1}{10}\cos^5 2x+C$



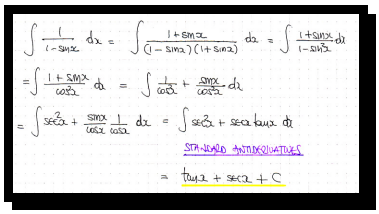
275. $$\int \frac{1}{\sin x \cos x}\, dx = \begin{bmatrix} \ln|\sin x| - \ln|\sec x| + C \\ \ln|\sin x| + \ln|\cos x| + C \\ \ln|\tan x| + C \\ -\ln|\cot 2x + \operatorname{cosec} 2x| + C \end{bmatrix}$$



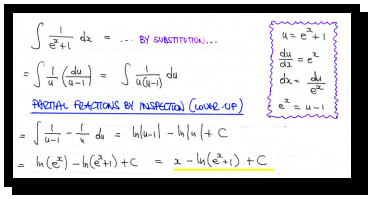
276. $$\int \frac{1}{\sin^2 x \cos x}\, dx = -\cot x + \ln|\sec x + \tan x| + C$$



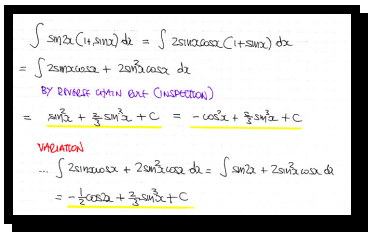
277. $$\int \frac{1}{1-\sin x}\, dx = \tan x + \sec x + C$$



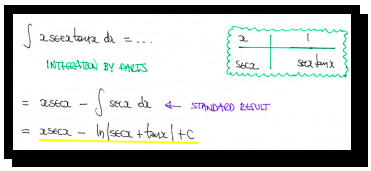
278. $\displaystyle\int \frac{1}{\mathrm{e}^x+1}\,dx = x-\ln\left(\mathrm{e}^x+1\right)+C$



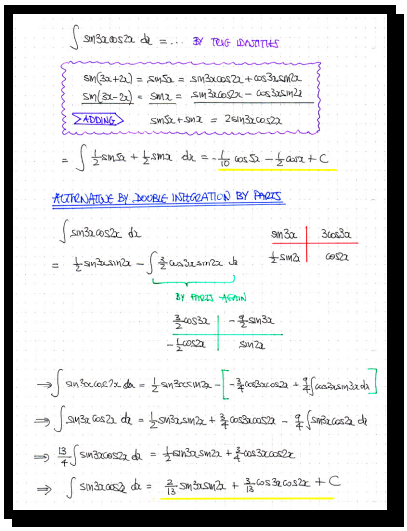
279. $\displaystyle\int (1+\sin x)\sin 2x\ \ dx = \begin{bmatrix} \frac{2}{3}\sin^3 x-\cos^2 x+C \\ \frac{2}{3}\sin^3 x+\sin^2 x+C \\ \frac{2}{3}\sin^3 x-\frac{1}{2}\cos 2x+C \end{bmatrix}$



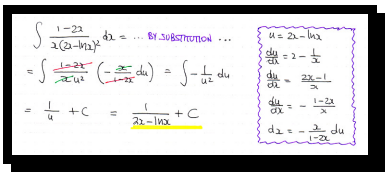
280. $\displaystyle\int x\sec x\tan x\ \ dx = x\sec x-\ln\left|\sec x+\tan x\right|+C$



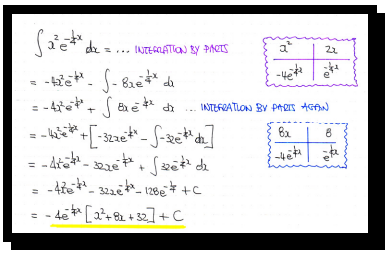
281. $$\int \sin 3x\cos 2x\ dx = \begin{bmatrix} -\frac{1}{10}\cos 5x-\frac{1}{2}\cos x+C \\ \frac{2}{13}\sin 3x\sin 2x+\frac{3}{13}\cos 3x\cos 2x+C \end{bmatrix}$$



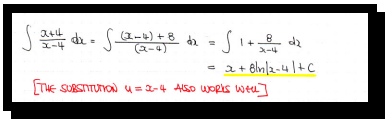
282. $$\int \frac{1-2x}{x\left(2x-\ln x\right)^2}\ dx = \frac{1}{2x-\ln x}+C$$



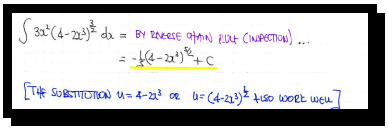
283. $$\int x^2 \mathrm{e}^{-\frac{1}{4}x}\ dx = -4\mathrm{e}^{-\frac{1}{4}x}\left[x^2+8x+32\right]+C$$



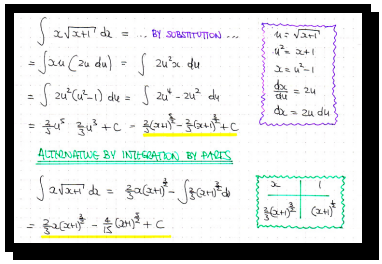
284. $\displaystyle\int \frac{x+4}{x-4}\,dx = x+8\ln|x-4|+C$



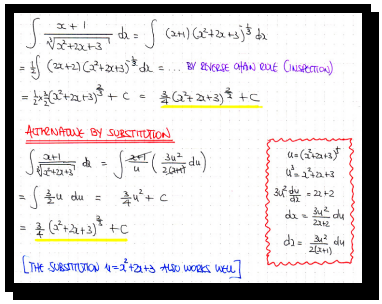
285. $\displaystyle\int 3x^2\left(4-2x^3\right)^{\frac{3}{2}}\,dx = -\frac{1}{5}\left(4-2x^3\right)^{\frac{5}{2}}+C$



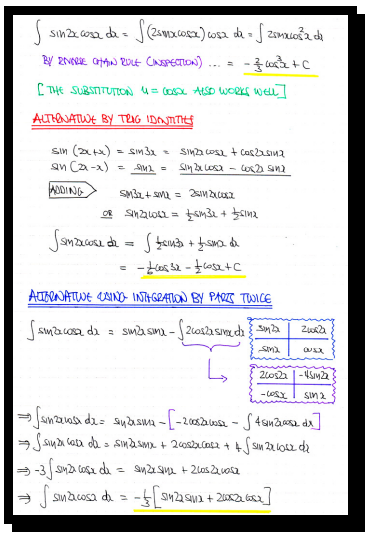
286. $\displaystyle\int x\sqrt{x+1}\,dx = \begin{bmatrix} \frac{2}{5}(x+1)^{\frac{5}{2}}-\frac{2}{3}(x+1)^{\frac{3}{2}}+C \\ \frac{2}{3}x(x+1)^{\frac{3}{2}}-\frac{4}{15}(x+1)^{\frac{5}{2}}+C \end{bmatrix}$



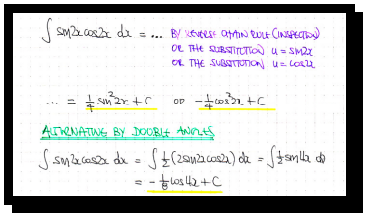
287. $\displaystyle\int \frac{x+1}{\sqrt[3]{x^2+2x+3}}\,dx = \frac{3}{4}\left(x^2+2x+3\right)^{\frac{2}{3}}+C$



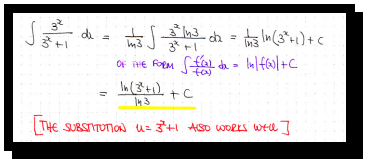
288. $\displaystyle\int \sin 2x\cos x\ dx = \begin{bmatrix} -\frac{2}{3}\cos^3 x + C \\ -\frac{1}{6}\cos 3x - \frac{1}{2}\cos x + C \\ -\frac{1}{3}\left(\sin 2x\sin x + 2\cos 2x\cos x\right) + C \end{bmatrix}$



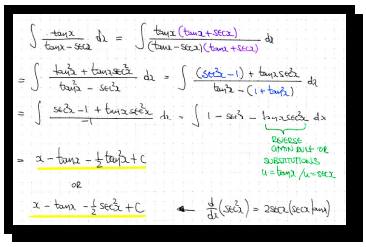
289. $\displaystyle\int \sin 2x\cos 2x\ dx = \begin{bmatrix} \frac{1}{4}\sin^2 2x + C \\ -\frac{1}{4}\cos^2 2x + C \\ -\frac{1}{8}\cos 4x + C \end{bmatrix}$



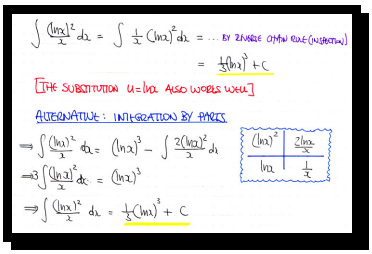
290. $\displaystyle\int \frac{3^x}{3^x+1}\ dx = \frac{\ln\left(3^x+1\right)}{\ln 3} + C$



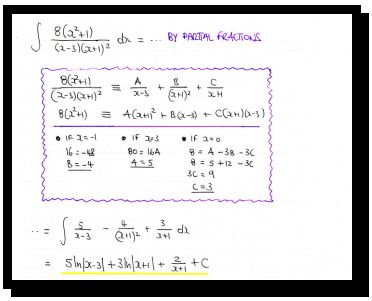
291. $$\int \frac{\tan x}{\tan x-\sec x}\,dx=\begin{bmatrix} x-\tan x-\frac{1}{2}\tan^2 x+C \\ x-\tan x-\frac{1}{2}\sec^2 x+C \end{bmatrix}$$



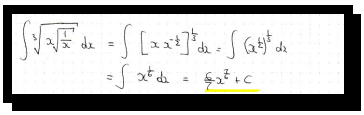
292. $$\int \frac{(\ln x)^2}{x}\,dx=\frac{1}{3}(\ln x)^3+C$$



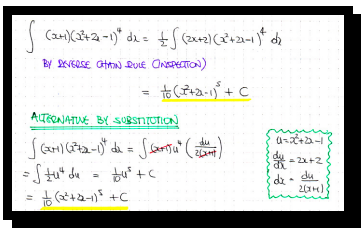
293. $$\int \frac{8\left(x^2+1\right)}{(x-3)(x+1)^2}\,dx=5\ln|x-3|+3\ln|x+1|+\frac{2}{x+1}+C$$



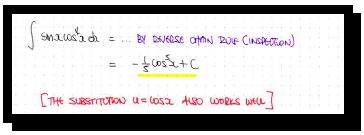
294. $\displaystyle\int \sqrt[3]{x\sqrt{\frac{1}{x}}}\ dx=\frac{6}{7}x^{\frac{7}{6}}+C$



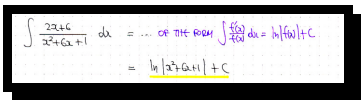
295. $\displaystyle\int (x+1)\left(x^2+2x-1\right)^4\ dx=\frac{1}{10}\left(x^2+2x-1\right)^5+C$



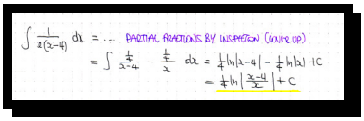
296. $\displaystyle\int \sin x\cos^4 x\ dx=-\frac{1}{5}\cos^5 x+C$



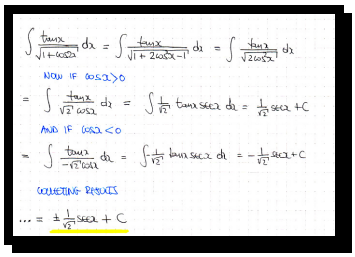
297. $\displaystyle\int \frac{2x+6}{x^2+6x+1}\ dx=\ln\left|x^2+6x+1\right|+C$



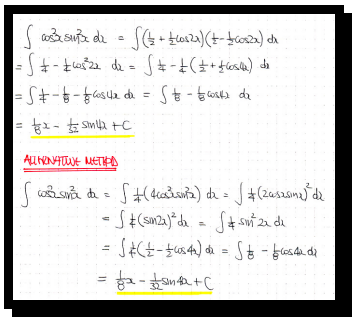
298. $\displaystyle\int \frac{1}{x(x-4)}\,dx=\frac{1}{4}\ln\left|\frac{x-4}{x}\right|+C$



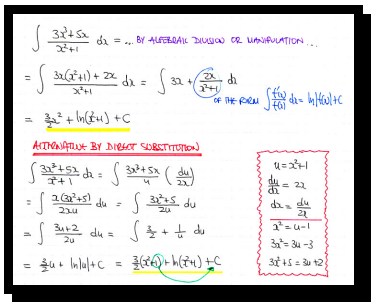
299. $\displaystyle\int \frac{\tan x}{\sqrt{1+\cos 2x}}\,dx=\pm\frac{1}{\sqrt{2}}\sec x+C$



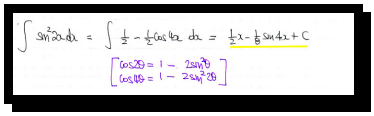
300. $\displaystyle\int \cos^2 x\sin^2 x\;dx=\frac{1}{8}x-\frac{1}{32}\sin 4x+C$



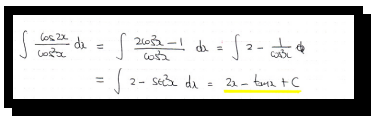
301. $\displaystyle\int \frac{3x^3+5x}{x^2+1}\,dx=\frac{3}{2}x^2+\ln\left(x^2+1\right)+C$



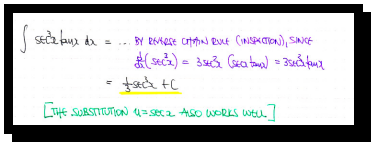
302. $\displaystyle\int \sin^2 2x\;dx=\frac{1}{2}x-\frac{1}{8}\sin 4x+C$



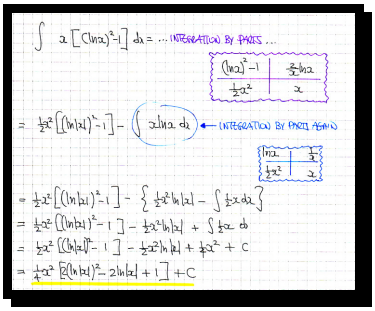
303. $\displaystyle\int \frac{\cos 2x}{\cos^2 x}\,dx=2x-\tan x+C$



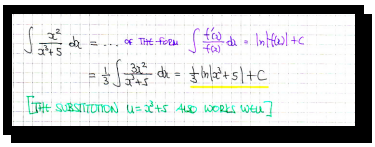
304. $\displaystyle\int \sec^3 x\tan x\;dx=\frac{1}{3}\sec^3 x+C$



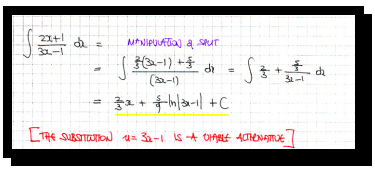
305. $\displaystyle\int x\left[(\ln x)^2-1\right]\,dx=\frac{1}{4}x^2\left[2\left(\ln|x|\right)^2-2\ln|x|+1\right]+C$



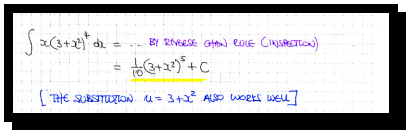
306. $\displaystyle\int \frac{x^2}{x^3+5}\,dx=\frac{1}{3}\ln\left|x^3+5\right|+C$



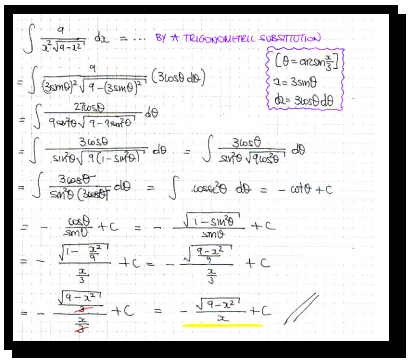
307. $\displaystyle\int \frac{2x+1}{3x-1}\,dx=\frac{2}{3}x+\frac{5}{9}\ln|3x-1|+C$



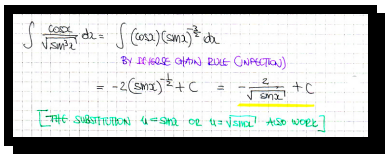
308. $\displaystyle\int x\left(3+x^2\right)^4\,dx=\frac{1}{10}\left(3+x^2\right)^5+C$



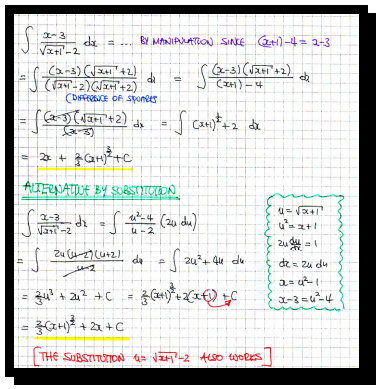
309. $\displaystyle\int \frac{9}{x^2\sqrt{9-x^2}}\,dx = -\frac{\sqrt{9-x^2}}{x} + C$



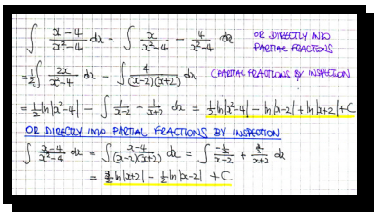
310. $\displaystyle\int \frac{\cos x}{\sqrt{\sin^3 x}}\,dx = -\frac{2}{\sqrt{\sin x}} + C$



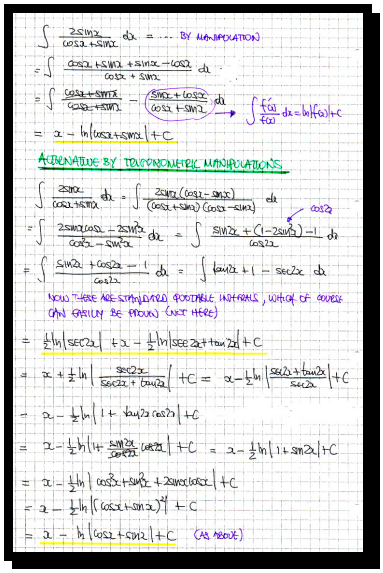
311. $\displaystyle\int \frac{x-3}{\sqrt{x+1}-2}\,dx = 2x + \frac{2}{3}(x+1)^{\frac{3}{2}} + C$



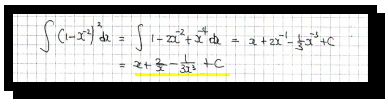
312. $$\int \frac{x-4}{x^2-4}\,dx = \begin{bmatrix} \frac{1}{2}\ln\left|x^2-4\right| + \ln\left|\frac{x+2}{x-2}\right| + C \\ \frac{3}{2}\ln|x+2| - \frac{1}{2}\ln|x-2| + C \end{bmatrix}$$



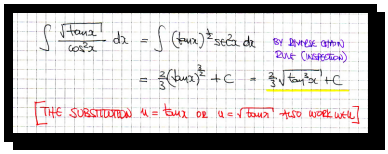
313. $$\int \frac{2\sin x}{\cos x + \sin x}\,dx = \begin{bmatrix} x - \ln|\cos x + \sin x| + C \\ x + \frac{1}{2}\ln|\sec 2x| - \frac{1}{2}\ln|\sec 2x + \tan 2x| + C \end{bmatrix}$$



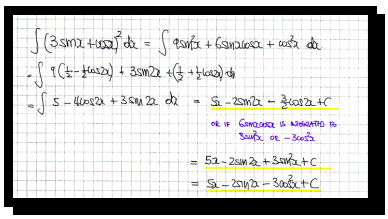
314. $$\int \left(1-x^{-2}\right)^2\,dx = 2 + \frac{2}{x} - \frac{1}{3x^3} + C$$



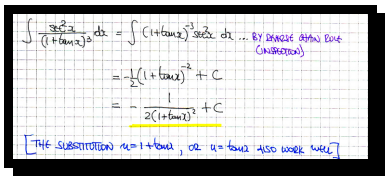
315. $\displaystyle\int \frac{\sqrt{\tan x}}{\cos^2 x}\,dx = \frac{2}{3}\sqrt{\tan^3 x} + C$



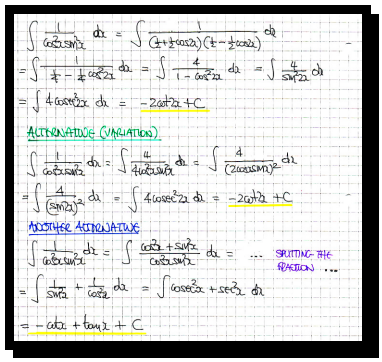
316. $\displaystyle\int (3\sin x + \cos x)^2\,dx = \begin{bmatrix} 5x - 2\sin 2x - \frac{3}{2}\cos 2x + C \\ 5x - 2\sin 2x + 3\sin^2 x + C \\ 5x - 2\sin 2x - 3\cos^2 x + C \end{bmatrix}$



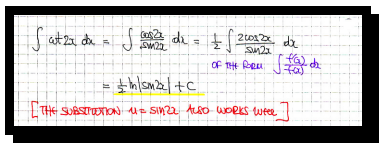
317. $\displaystyle\int \frac{\sec^2 x}{(1+\tan x)^3}\,dx = -\frac{1}{2(1+\tan x)^2} + C$



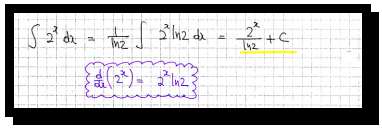
318. $\displaystyle\int \frac{1}{\cos^2 x \sin^2 x}\, dx = \begin{bmatrix} -2\cot 2x + C \\ -\cot x + \tan x + C \end{bmatrix}$



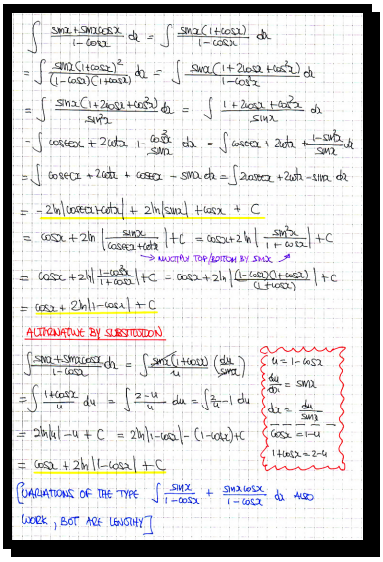
319. $\displaystyle\int \cot 2x \; dx = \frac{1}{2}\ln\left|\sin 2x\right| + C$



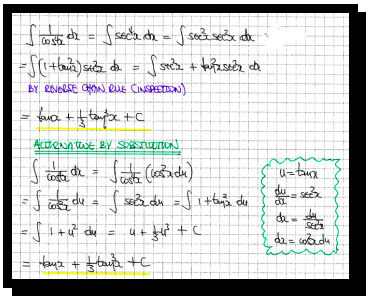
320. $\displaystyle\int 2^x \; dx = \frac{2^x}{\ln 2} + C$



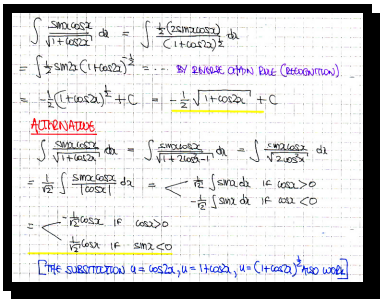
321. $\displaystyle\int \frac{\sin x+\sin x\cos x}{1-\cos x}\,dx=\begin{bmatrix}\cos x+2\ln|1-\cos x|+C\\ \cos x+2\ln|\sin x|-2\ln|\cot x+\operatorname{cosec} x|+C\end{bmatrix}$



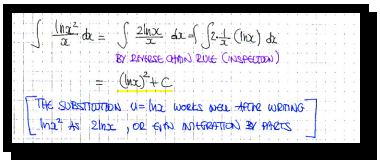
322. $\displaystyle\int \frac{1}{\cos^4 x}\,dx=\tan x+\frac{1}{3}\tan^3 x+C$



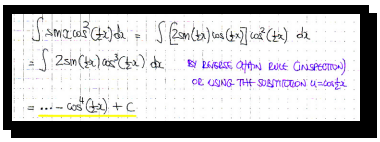
323. $$\int \frac{\sin x\cos x}{\sqrt{1+\cos 2x}}\,dx=\left[\begin{array}{c} -\frac{1}{2}\sqrt{1+\cos 2x}+C \\ \left[\begin{array}{ll} -\frac{\cos x}{\sqrt{2}}+C & \text{if} \quad \cos x>0 \\ \frac{\cos x}{\sqrt{2}}+C & \text{if} \quad \cos x<0 \end{array}\right] \end{array}\right]$$



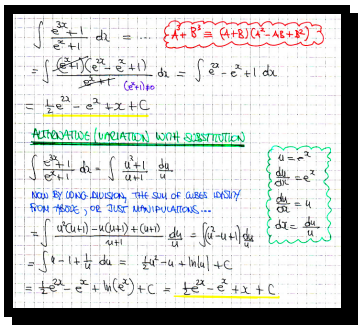
324. $$\int \frac{\ln x^2}{x}\,dx=\left(\ln|x|\right)^2+C$$



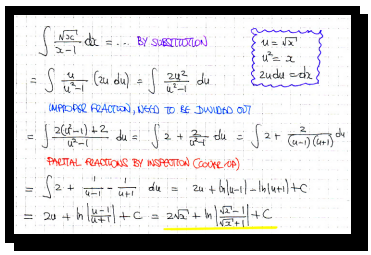
325. $$\int \sin x\cos^2\left(\frac{1}{2}x\right)\,dx=-\cos^4\left(\frac{1}{2}x\right)+C$$



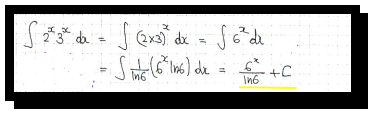
326. $$\int \frac{\mathrm{e}^{3x}+1}{\mathrm{e}^{x}+1}\,dx=\frac{1}{2}\mathrm{e}^{2x}-\mathrm{e}^{x}+x+C$$



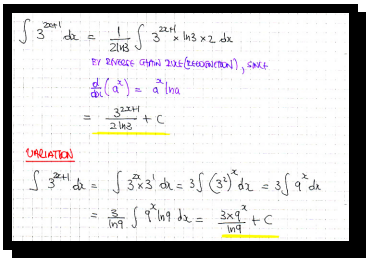
327. $$\int \frac{\sqrt{x}}{x-1}\,dx=2\sqrt{x}+\ln\left|\frac{\sqrt{x}-1}{\sqrt{x}+1}\right|+C$$



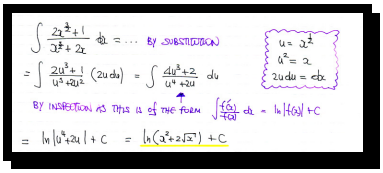
328. $$\int 2^{x}\ 3^{x}\ dx=\frac{6^{x}}{\ln 6}+C$$



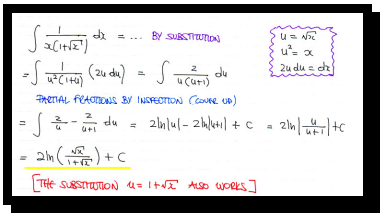
329. $$\int 3^{2x+1}\,dx = \begin{bmatrix} \dfrac{3^{2x+1}}{2\ln 3}+C \\ \dfrac{3\times 9^{x}}{\ln 9}+C \end{bmatrix}$$



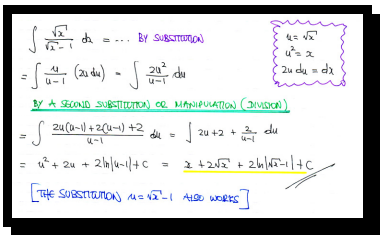
330. $$\int \frac{2x^{\frac{3}{2}}+1}{x^{\frac{5}{2}}+2x}\,dx = \ln\left(x^2+2\sqrt{x}\right)+C$$



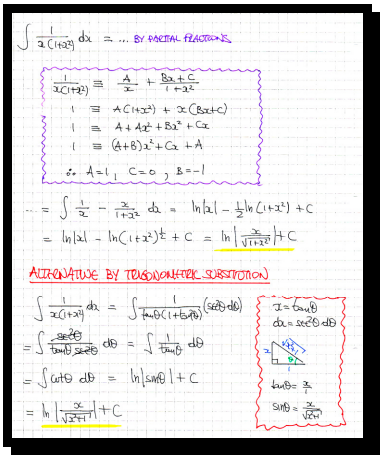
331. $$\int \frac{1}{x\left(1+\sqrt{x}\right)}\,dx = 2\ln\left(\frac{\sqrt{x}}{1+\sqrt{x}}\right)+C$$



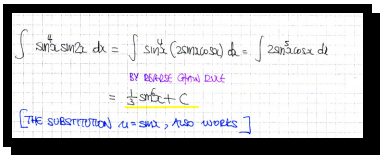
332. $\displaystyle\int \frac{\sqrt{x}}{\sqrt{x}-1}\,dx = x+2\sqrt{x}+2\ln\left|\sqrt{x}-1\right|+C$



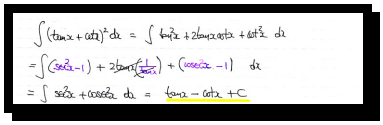
333. $\displaystyle\int \frac{1}{x\left(1+x^2\right)}\,dx = \ln\left|\frac{x}{\sqrt{x^2+1}}\right|+C$



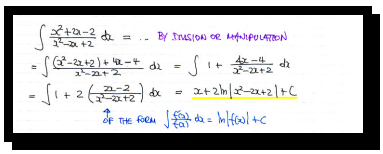
334. $\displaystyle\int \sin^4 x \sin 2x\ dx = \frac{1}{3}\sin^6 x + C$



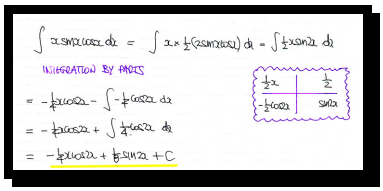
335. $\displaystyle\int (\tan x+\cot x)^2\ dx=\tan x-\cot x+C$



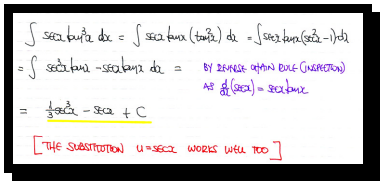
336. $\displaystyle\int \frac{x^2+2x-2}{x^2-2x+2}\ dx=x+\ln\left(x^2-2x+2\right)+C$



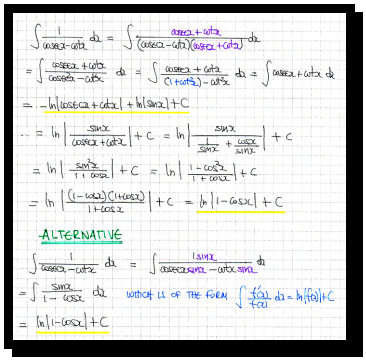
337. $\displaystyle\int x\sin x\cos x\ dx=-\frac{1}{4}x\cos 2x+\frac{1}{8}\sin 2x+C$



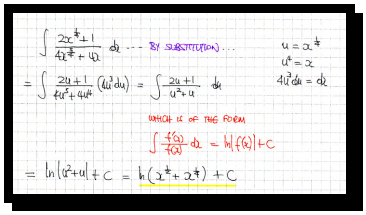
338. $\displaystyle\int \sec x\tan^3 x\ dx=-\frac{1}{3}\sec^3 x-\sec x+C$



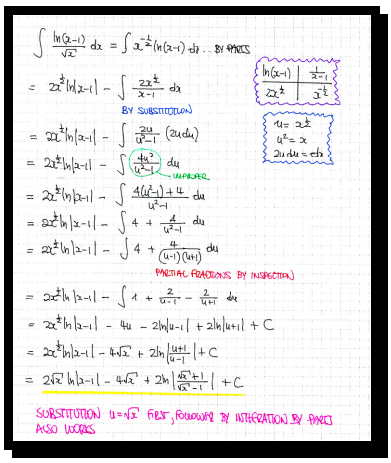
339. $$\int \frac{1}{\operatorname{cosec} x - \cot x}\, dx = \begin{bmatrix} \ln|\sin x| - \ln|\operatorname{cosec} x + \cot x| + C \\ \ln|1 - \cos x| + C \end{bmatrix}$$



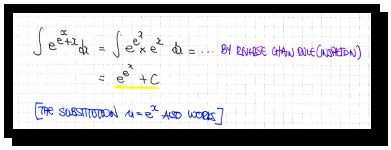
340. $$\int \frac{2x^{\frac{1}{4}} + 1}{4x^{\frac{5}{4}} + 4x}\, dx = \ln\left(x^{\frac{1}{2}} + x^{\frac{1}{4}}\right) + C$$



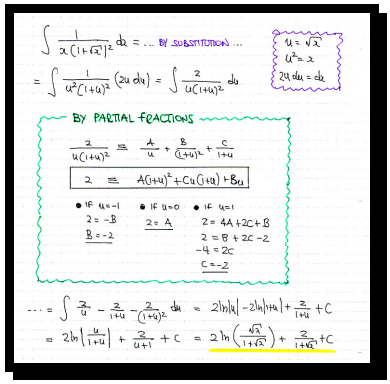
341. $$\int \frac{\ln(x-1)}{\sqrt{x}}\, dx = 2\sqrt{x}\ln|x-1| - 4\sqrt{x} + 2\ln\left|\frac{\sqrt{x}+1}{\sqrt{x}-1}\right| + C$$



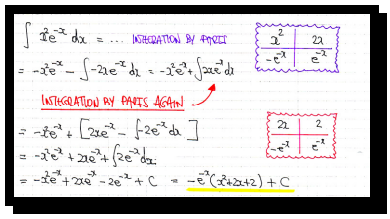
342. $\displaystyle\int e^{x+e^x}\,dx = e^{e^x}+C$



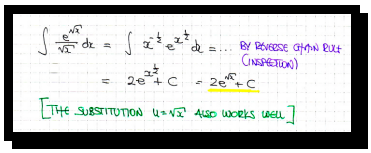
343. $\displaystyle\int \frac{1}{x\left(1+\sqrt{x}\right)^2}\,dx = 2\ln\left[\frac{\sqrt{x}}{1+\sqrt{x}}\right]+\frac{2}{1+\sqrt{x}}+C$



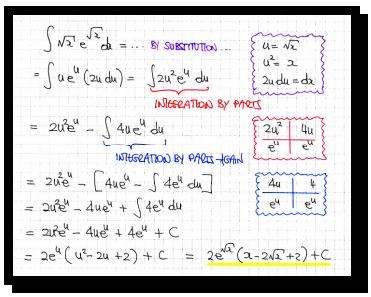
344. $\displaystyle\int x^2 e^{-x}\,dx = -e^{-x}\left(x^2+2x+2\right)+C$



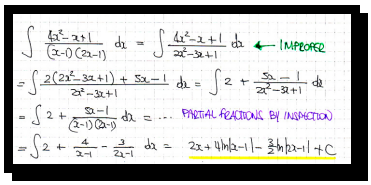
345. $\displaystyle\int \frac{\mathrm{e}^{\sqrt{x}}}{\sqrt{x}}\,dx = 2\mathrm{e}^{\sqrt{x}} + C$



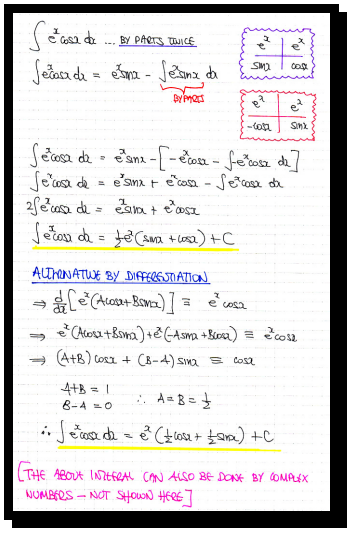
346. $\displaystyle\int \sqrt{x}\,\mathrm{e}^{\sqrt{x}}\,dx = 2\mathrm{e}^{\sqrt{x}}\left(x+2\sqrt{x}+2\right) + C$



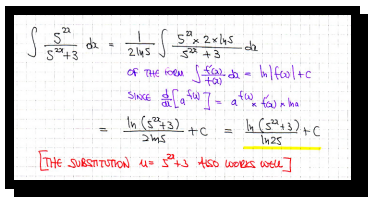
347. $\displaystyle\int \frac{4x^2-x+1}{(x-1)(2x-1)}\,dx = 2x+4\ln|x-1|-\frac{3}{2}\ln|2x-1| + C$



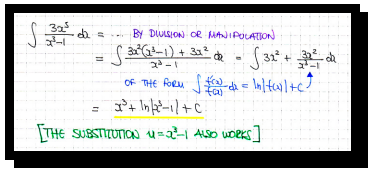
348. $\displaystyle\int \mathrm{e}^{x}\cos x\ dx=\frac{1}{2}\mathrm{e}^{-x}\left(\sin x+\cos x\right)+C$



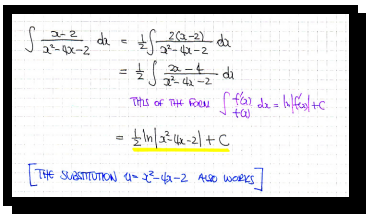
349. $\displaystyle\int \frac{5^{2x}}{5^{2x}+3}\ dx=\frac{\ln\left(5^{2x}+3\right)}{\ln 25}+C$



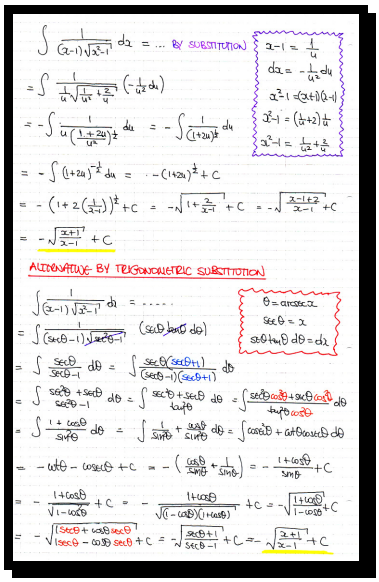
350. $\displaystyle\int \frac{3x^{5}}{x^{3}-1}\ dx=x^{3}+\ln\left|x^{3}-1\right|+C$



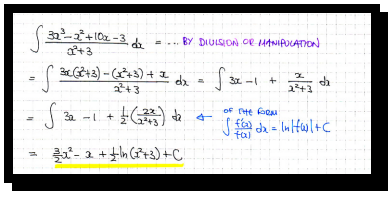
351. $\displaystyle\int \frac{x-2}{x^2-4x-2}\,dx=\frac{1}{2}\ln\left|x^2-4x-2\right|+C$



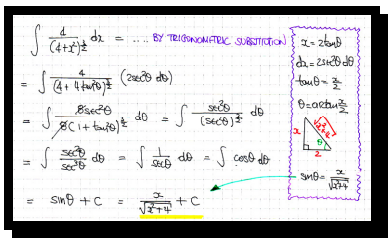
352. $\displaystyle\int \frac{1}{(x-1)\sqrt{x^2-1}}\,dx=-\sqrt{\frac{x+1}{x-1}}+C$



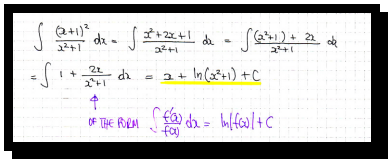
353. $\displaystyle\int \frac{3x^3-x^2+10x-3}{x^2+3}\,dx=\frac{3}{2}x^2-x+\frac{1}{2}\ln\left(x^2+3\right)+C$



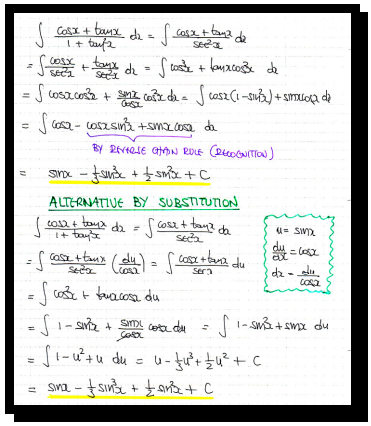
354. $$\int \frac{4}{\left(4+x^2\right)^{\frac{3}{2}}}\,dx=\frac{x}{\sqrt{4+x^2}}+C$$



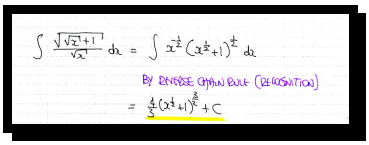
355. $$\int \frac{(x+1)^2}{x^2+1}\,dx=x+\ln\left(x^2+1\right)+C$$



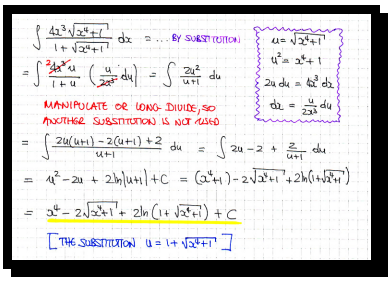
356. $$\int \frac{\cos x+\tan x}{1+\tan^2 x}\,dx=\sin x-\frac{1}{3}\sin^3 x+\frac{1}{2}\sin^2 x+C$$



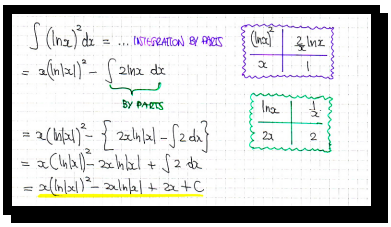
357. $$\int \frac{\sqrt{1+\sqrt{x}}}{\sqrt{x}}\,dx=\frac{4}{3}\left(1+\sqrt{x}\right)^{\frac{3}{2}}+C$$



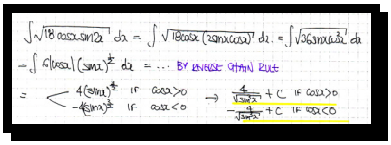
358. $$\int \frac{4x^3\sqrt{x^4+1}}{1+\sqrt{x^4+1}}\,dx=x^4-2\sqrt{x^4+1}+2\ln\left(1+\sqrt{x^4+1}\right)+C$$



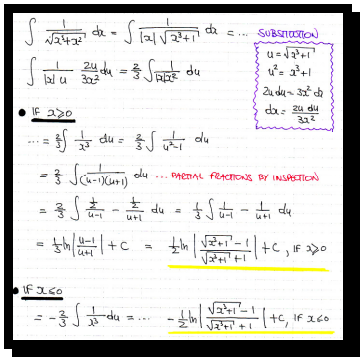
359. $$\int (\ln x)^2\,dx=2x+x\left(\ln|x|\right)^2-2x\ln|x|+C$$



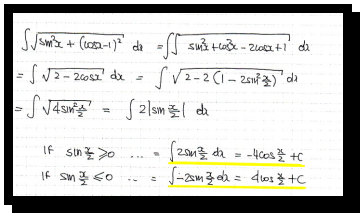
360. $$\int \sqrt{18\cos x \sin 2x}\ dx = \begin{cases} \dfrac{4}{\sqrt{\sin^3 x}} + C & \text{if } \cos x > 0 \\ -\dfrac{4}{\sqrt{\sin^3 x}} + C & \text{if } \cos x > 0 \end{cases}$$



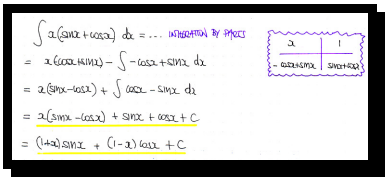
361. $$\int \frac{1}{\sqrt{x^5 + x^2}}\ dx = \begin{cases} \dfrac{1}{2}\ln\left|\dfrac{\sqrt{x^3+1}-1}{\sqrt{x^3+1}+1}\right| + C & \text{if } x > 0 \\ -\dfrac{1}{2}\ln\left|\dfrac{\sqrt{x^3+1}-1}{\sqrt{x^3+1}+1}\right| + C & \text{if } x < 0 \end{cases}$$



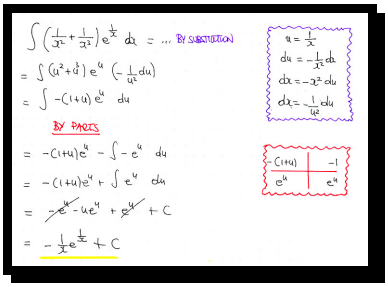
362. $$\int \sqrt{\sin^2 x + (\cos x - 1)^2}\ dx = \begin{cases} 4\cos\left(\frac{1}{2}x\right) + C & \text{if } \sin\left(\frac{1}{2}x\right) < 0 \\ -4\cos\left(\frac{1}{2}x\right) + C & \text{if } \sin\left(\frac{1}{2}x\right) > 0 \end{cases}$$



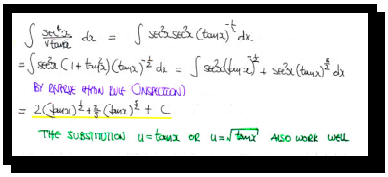
363. $\displaystyle\int x(\sin x+\cos x)\,dx=\begin{bmatrix} x(\sin x-\cos x)+\sin x+\cos x+C \\ (1+x)\sin x+(1-x)\cos x+C \end{bmatrix}$



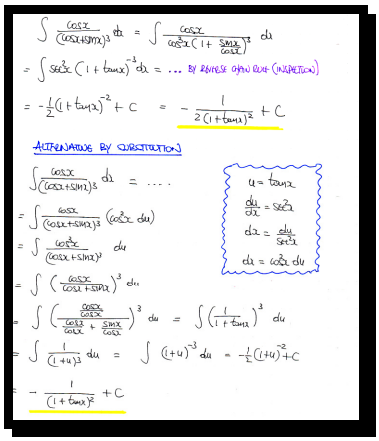
364. $\displaystyle\int \left(\frac{1}{x^2}+\frac{1}{x^3}\right)\mathrm{e}^{\frac{1}{x}}\,dx=-\frac{1}{x}\mathrm{e}^{\frac{1}{x}}+C$



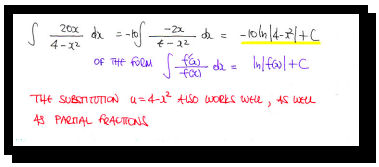
365. $\displaystyle\int \frac{\sec^4 x}{\sqrt{\tan x}}\,dx=2(\tan x)^{\frac{1}{2}}+\frac{2}{5}(\tan x)^{\frac{5}{2}}+C$



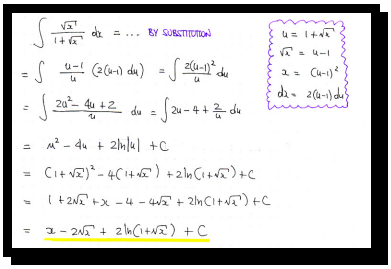
366. $$\int \frac{\cos x}{(\cos x+\sin x)^3}\,dx=-\frac{1}{2(1+\tan x)^2}+C$$



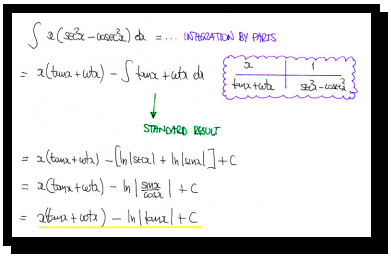
367. $$\int \frac{20x}{4-x^2}\,dx=-10\ln\left|4-x^2\right|+C$$



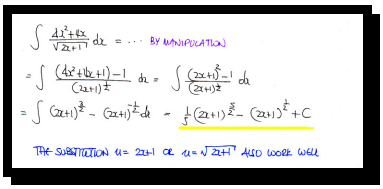
368. $$\int \frac{\sqrt{x}}{1+\sqrt{x}}\,dx=x-2\sqrt{x}+2\ln\left(1+\sqrt{x}\right)+C$$



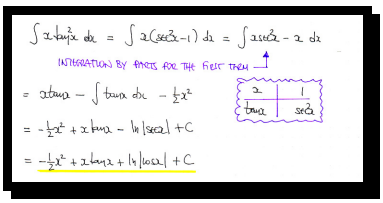
369. $\displaystyle\int x\left(\sec^2 x-\operatorname{cosec}^2 x\right)\,dx=x\left(\tan x+\cot x\right)-\ln\left|\tan x\right|+C$



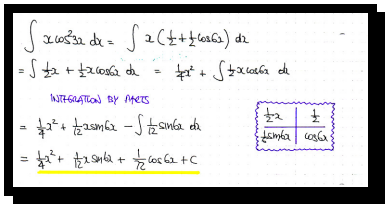
370. $\displaystyle\int \frac{4x^2+4x}{\sqrt{2x+1}}\,dx=\frac{1}{5}(2x+1)^{\frac{5}{2}}-(2x+1)^{\frac{1}{2}}+C$



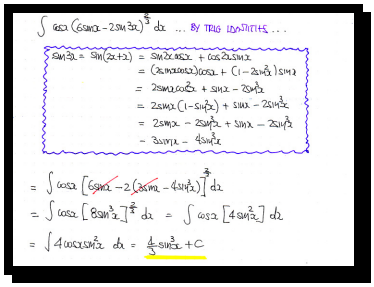
371. $\displaystyle\int x\tan^2 x\,\,dx=-\frac{1}{2}x^2+x\tan x+\ln\left|\cos x\right|+C$



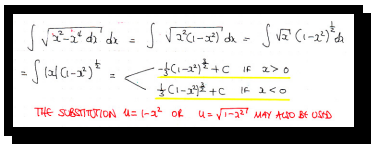
372. $\displaystyle\int x\cos^2 3x\,\,dx=\frac{1}{4}x^2+\frac{1}{12}x\sin 6x+\frac{1}{72}\cos 6x+C$



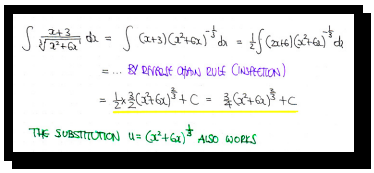
373. $\displaystyle\int \cos x\left(6\sin x-2\sin 3x\right)^{\frac{2}{3}}\,dx=\frac{4}{3}\sin^3 x+C$



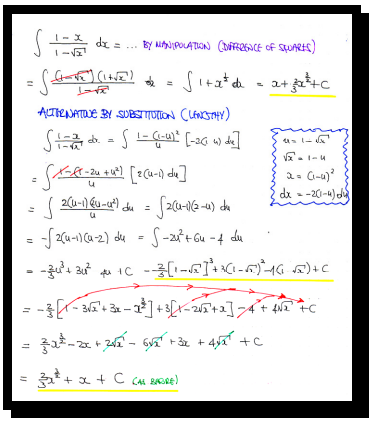
374. $\displaystyle\int \sqrt{x^2-x^4}\,dx=\begin{cases}-\frac{1}{3}\left(1-x^2\right)^{\frac{3}{2}}+C & x>0\\ \frac{1}{3}\left(1-x^2\right)^{\frac{3}{2}}+C & x<0\end{cases}$



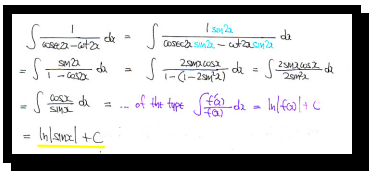
375. $\displaystyle\int \frac{x+3}{\sqrt[3]{x^2+6x}}\,dx=\frac{3}{4}\left(x^2+6x\right)^{\frac{2}{3}}+C$



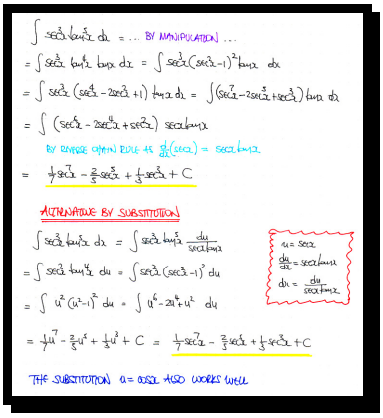
376. $$\int \frac{1-x}{1-\sqrt{x}}\,dx = \begin{bmatrix} -\frac{2}{3}\left(1-\sqrt{x}\right)^3+3\left(1-\sqrt{x}\right)^3-4\left(1-\sqrt{x}\right)+C \\ \\ \frac{2}{3}x^{\frac{3}{2}}+x+C \end{bmatrix}$$



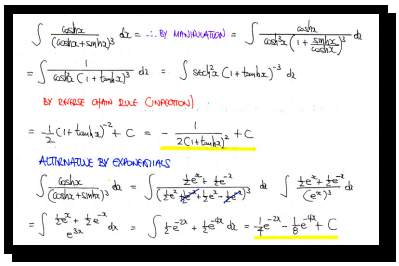
377. $$\int \frac{1}{\operatorname{cosec} 2x-\cot 2x}\,dx = \ln\left|\sin x\right|+C$$



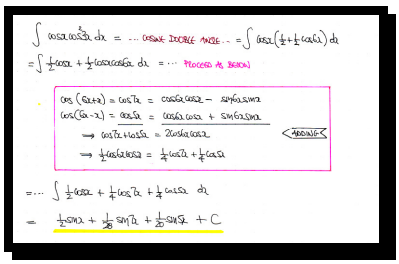
378. $$\int \sec^3 x\tan^5 x\;dx = \frac{1}{7}\sec^7 x-\frac{2}{5}\sec^5 x+\frac{1}{3}\sec^3 x+C$$



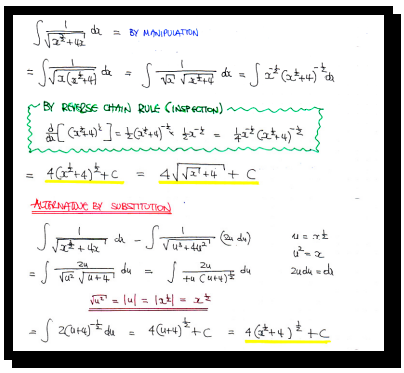
379. $$\int \frac{\cosh x}{(\cosh x+\sinh x)^3}\,dx=\begin{bmatrix} -\dfrac{1}{2(1+\tanh x)^2}+C \\ -\dfrac{1}{4}\mathrm{e}^{-2x}-\dfrac{1}{8}\mathrm{e}^{-4x}+C \end{bmatrix}$$



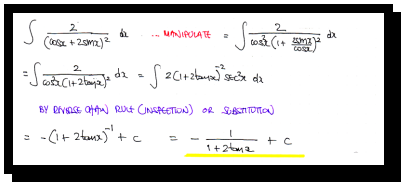
380. $$\int \cos x\cos^2 3x\,dx=\frac{1}{2}\sin x+\frac{1}{28}\sin 7x+\frac{1}{20}\sin 5x+C$$



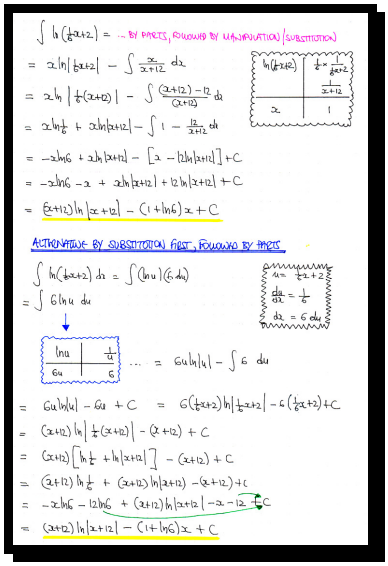
381. $$\int \frac{1}{\sqrt{x^{\frac{3}{2}}+4x}}\,dx=4\sqrt{4+\sqrt{x}}+C$$



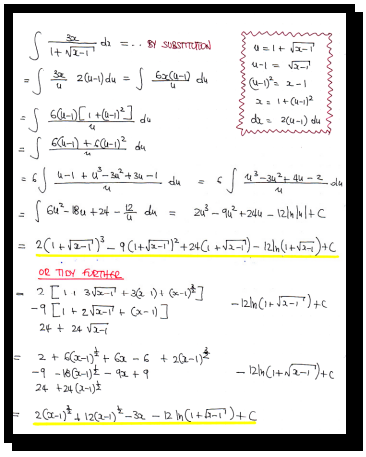
382. $$\int \frac{2}{(\cos x+2\sin x)^2}\,dx=-\frac{1}{1+2\tan x}+C$$



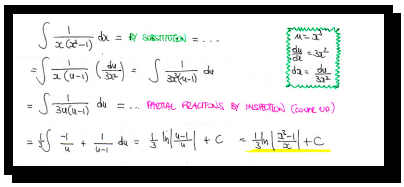
383. $$\int \ln\left(\frac{1}{6}x+2\right)dx=(x+12)\ln|x+12|-(1+\ln 6)x+C$$



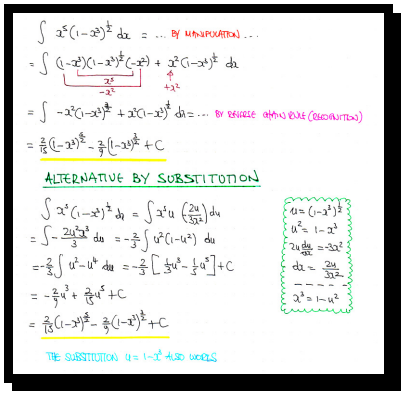
384. $\displaystyle\int \frac{3x}{1+\sqrt{x-1}}\,dx = 2(x-1)^{\frac{3}{2}} + 12(x-1)^{\frac{1}{2}} - 3x - 12\ln\left(1+\sqrt{x-1}\right) + C$



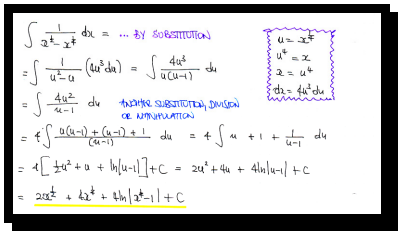
385. $\displaystyle\int \frac{1}{x\left(x^3-1\right)}\,dx = \frac{1}{3}\ln\left|\frac{x^3-1}{x}\right| + C$



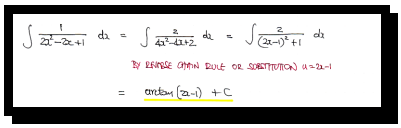
386. $\displaystyle\int x^5\left(1-x^3\right)^{\frac{1}{2}}\,dx = \frac{2}{15}\left(1-x^3\right)^{\frac{5}{2}} - \frac{2}{9}\left(1-x^3\right)^{\frac{3}{2}} + C$



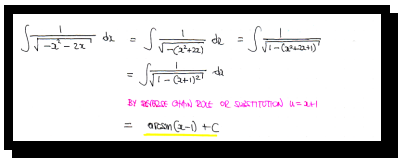
387. $$\int \frac{1}{x^{\frac{1}{2}}-x^{\frac{1}{4}}}\,dx = 2x^{\frac{1}{2}}+4x^{\frac{1}{4}}+4\ln\left|x^{\frac{1}{4}}-1\right|+C$$



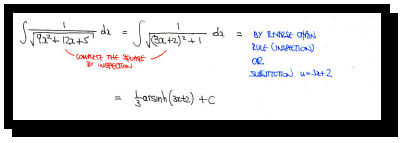
388. $$\int \frac{1}{2x^2-2x+1}\,dx = \arctan(2x-1)+C$$



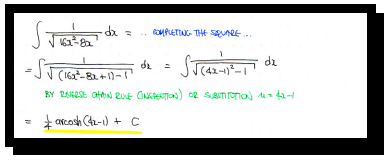
389. $$\int \frac{1}{\sqrt{-x^2-2x}}\,dx = \arcsin(x-1)+C$$



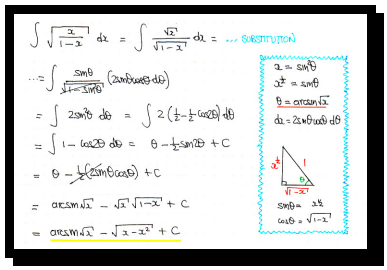
390. $$\int \frac{1}{\sqrt{9x^2+12x+5}}\,dx = \frac{1}{3}\operatorname{arsinh}(3x+2)+C$$



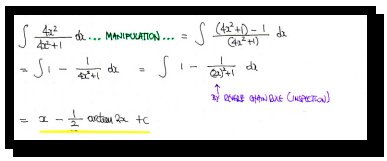
391. $$\int \frac{1}{\sqrt{16x^2-8x}}\,dx=\frac{1}{4}\operatorname{arcosh}(4x-1)+C$$



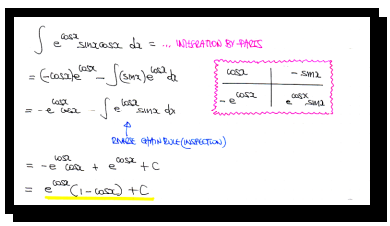
392. $$\int \sqrt{\frac{x}{1-x}}\,dx=\arcsin\sqrt{x}-\sqrt{x-x^2}+C$$



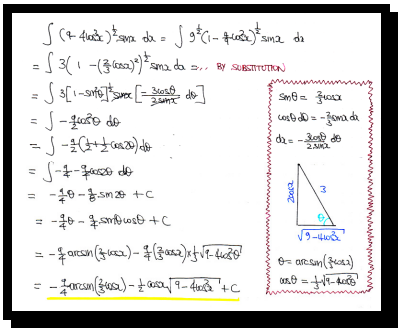
393. $$\int \frac{4x^2}{4x^2+1}\,dx=x-\frac{1}{2}\arctan 2x+C$$



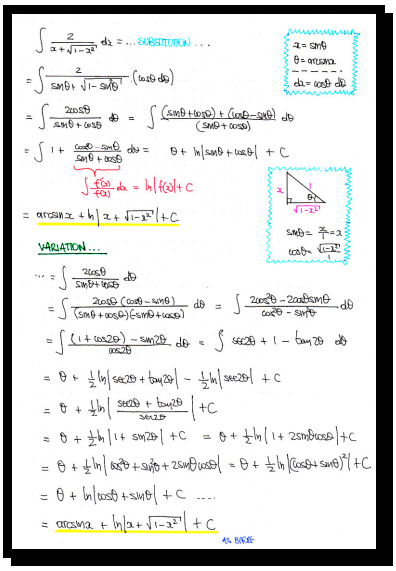
394. $$\int \mathrm{e}^{\cos x}\sin x\cos x\,dx=(1-\cos x)\mathrm{e}^{\cos x}+C$$



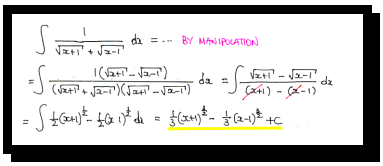
395. $\displaystyle\int \left(9-4\sin^2 x\right)^{\frac{1}{2}} \sin x \, dx = -\frac{9}{4}\arcsin\left(\frac{2}{3}\cos x\right) - \frac{1}{2}\left(9-4\sin^2 x\right)^{\frac{1}{2}} \cos x + C$



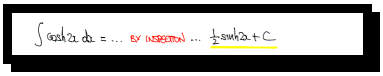
396. $\displaystyle\int \frac{2}{x+\sqrt{1-x^2}}\, dx = \arcsin x + \ln\left(x+\sqrt{1-x^2}\right) + C$



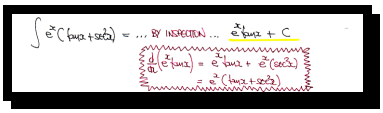
397. $\displaystyle\int \frac{1}{\sqrt{x+1}+\sqrt{x-1}}\, dx = \frac{1}{3}(x+1)^{\frac{3}{2}} - \frac{1}{3}(x-1)^{\frac{3}{2}} + C$



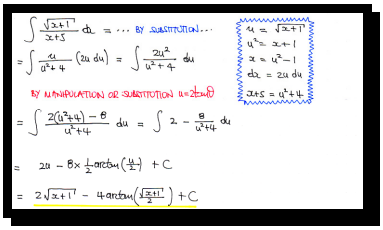
398. $\displaystyle\int \cosh 2x \, dx = \frac{1}{2}\sin 2x + C$



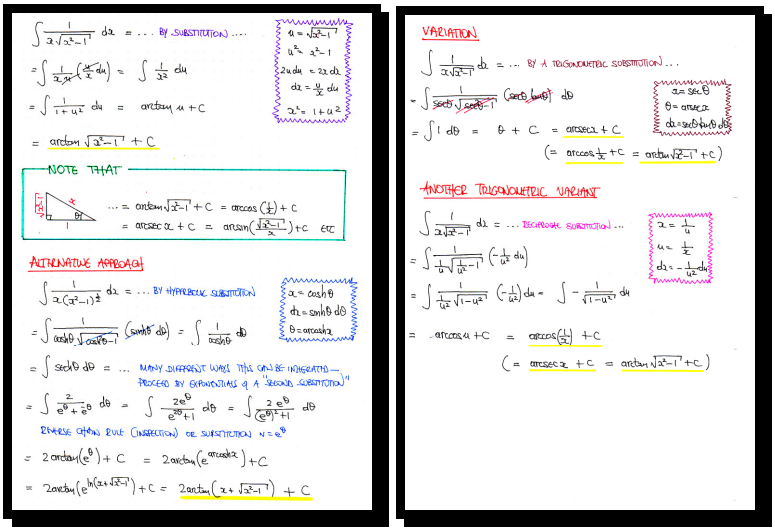
399. $\displaystyle\int \mathrm{e}^x \left(\tan x + \sec^2 x\right) dx = \mathrm{e}^x \tan x + C$



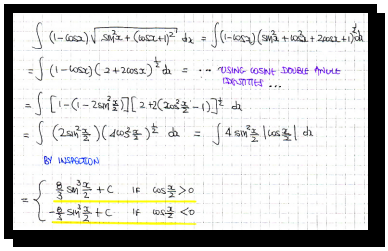
400. $\displaystyle\int \frac{\sqrt{x+1}}{x+5} \, dx = 2\sqrt{x+1} - 4\arctan\left(\frac{\sqrt{x+1}}{2}\right) + C$



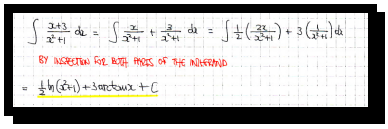
401. $$\int \frac{1}{x\sqrt{x^2-1}}\,dx = \begin{bmatrix} \arctan\sqrt{x^2-1}+C \\ \arcsin\left(\dfrac{\sqrt{x^2-1}}{x}\right)+C \\ \arccos\left(\dfrac{1}{x}\right)+C \\ \operatorname{arcsec} x+C \\ 2\arctan\left(x+\sqrt{x^2-1}\right)+C \end{bmatrix}$$



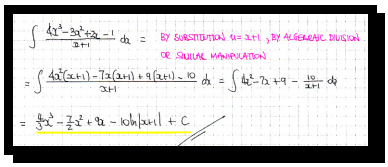
402. $$\int (1-\cos x)\sqrt{(1+\cos x)^2+\sin^2 x}\,dx = \begin{cases} \dfrac{8}{3}\sin^2\left(\dfrac{1}{2}x\right)+C & \text{if } \cos\left(\dfrac{1}{2}x\right)>0 \\ -\dfrac{8}{3}\sin^2\left(\dfrac{1}{2}x\right)+C & \text{if } \cos\left(\dfrac{1}{2}x\right)>0 \end{cases}$$



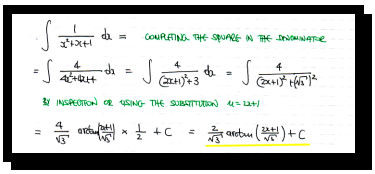
403. $\displaystyle\int \frac{x+3}{x^2+1}\,dx = 3\arctan x + \frac{1}{2}\ln\left(x^2+1\right) + C$



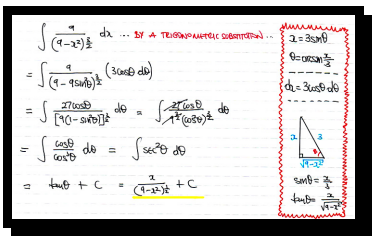
404. $\displaystyle\int \frac{4x^3-3x^2+2x-1}{x+1}\,dx = \frac{4}{3}x^3 - \frac{7}{2}x^2 + 9x - 10\ln|x+1| + C$



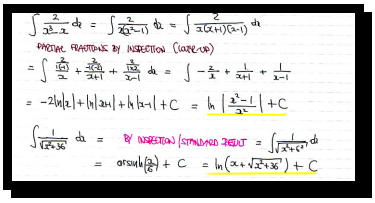
405. $\displaystyle\int \frac{1}{x^2+x+1}\,dx = \frac{2}{\sqrt{3}}\arctan\left(\frac{2x+1}{\sqrt{3}}\right) + C$



406. $\displaystyle\int \frac{9}{\left(9-x^2\right)^{\frac{3}{2}}}\,dx = \frac{x}{\sqrt{9-x^2}} + C$

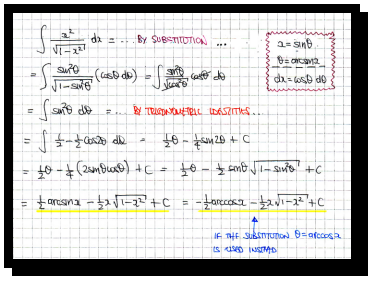


407. $$\int \frac{2}{x^3-x}\,dx=\ln\left|\frac{x^2-1}{x^2}\right|+C$$

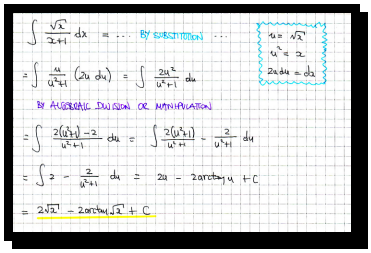


408. $$\int \frac{1}{\sqrt{x^2+36}}\,dx=\begin{bmatrix}\operatorname{arsinh}\left(\frac{1}{6}x\right)+C\\ \ln\left(x+\sqrt{x^2+36}\right)+C\end{bmatrix}$$

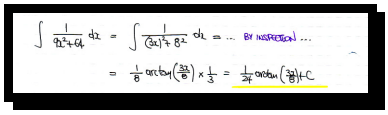
409. $$\int \frac{x^2}{\sqrt{1-x^2}}\,dx=\begin{bmatrix}\frac{1}{2}\arcsin x-\frac{1}{2}x\sqrt{1-x^2}+C\\ -\frac{1}{2}\arccos x-\frac{1}{2}x\sqrt{1-x^2}+C\end{bmatrix}$$



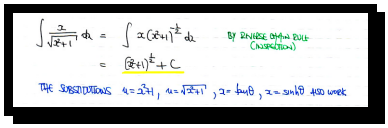
410. $\displaystyle\int \frac{\sqrt{x}}{x+1}\,dx = 2\sqrt{x} - 2\arctan\left(\sqrt{x}\right) + C$



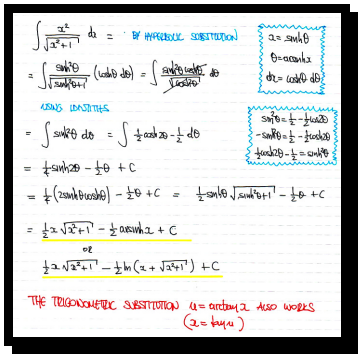
411. $\displaystyle\int \frac{1}{9x^2+64}\,dx = \frac{1}{24}\arctan\left(\frac{3}{8}x\right) + C$



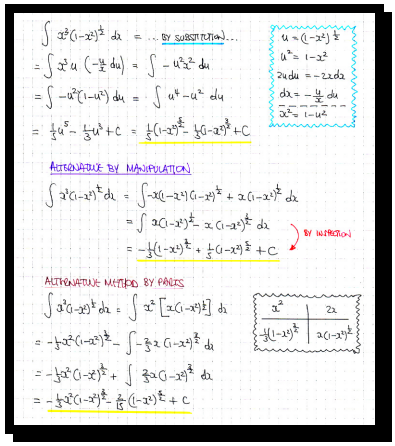
412. $\displaystyle\int \frac{x}{\sqrt{x^2+1}}\,dx = \sqrt{x^2+1} + C$



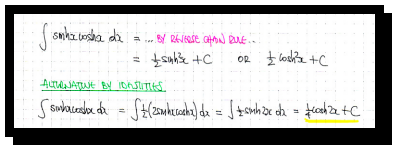
413. $$\int \frac{x^2}{\sqrt{x^2+1}}\,dx = \begin{bmatrix} \frac{1}{2}x\sqrt{x^2+1}-\frac{1}{2}\operatorname{arsinh}x+C \\ \frac{1}{2}x\sqrt{x^2+1}-\frac{1}{2}\ln\left(x+\sqrt{x^2+1}\right)+C \end{bmatrix}$$



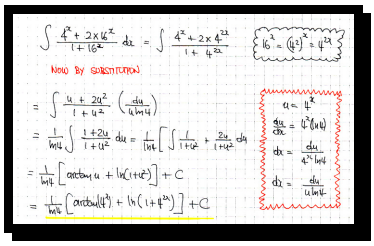
414. $$\int x^3\left(1-x^2\right)^{\frac{1}{2}}\,dx = \begin{bmatrix} \frac{1}{5}\left(1-x^2\right)^{\frac{5}{2}}-\frac{1}{3}\left(1-x^2\right)^{\frac{3}{2}}+C \\ -\frac{1}{3}x^2\left(1-x^2\right)^{\frac{3}{2}}-\frac{2}{15}\left(1-x^2\right)^{\frac{5}{2}}+C \end{bmatrix}$$



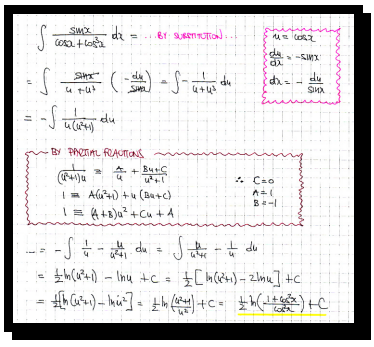
415. $$\int \sinh x \cosh x \; dx = \begin{bmatrix} \frac{1}{2}\sinh^2 x + C \\ \frac{1}{2}\cosh^2 x + C \\ \frac{1}{4}\cosh 2x + C \end{bmatrix}$$



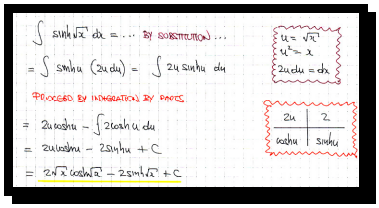
416. $$\int \frac{4^x + 2\times 16^x}{1+16^x}\; dx = \frac{1}{\ln 4}\left[\arctan\left(4^x\right) \ln\left(1+4^{2x}\right)\right] + C$$



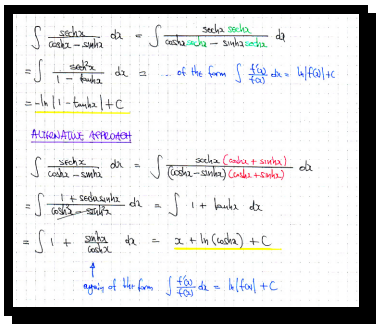
417. $$\int \frac{\sin x}{\cos x + \cos^3 x}\; dx = \frac{1}{2}\ln\left(\frac{1+\cos^2 x}{\cos^2 x}\right) + C$$



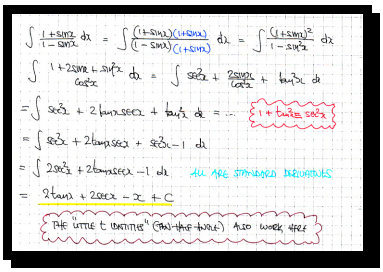
418. $\displaystyle\int \sinh\sqrt{x}\ dx = 2\sqrt{x}\cosh\sqrt{x} - 2\sinh\sqrt{x} + C$



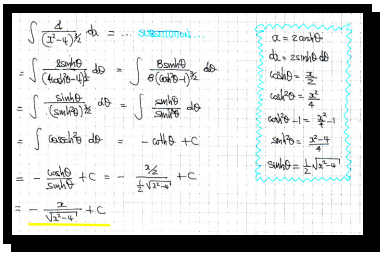
419. $\displaystyle\int \frac{\operatorname{sech} x}{\cosh x - \sinh x}\ dx = \begin{bmatrix} -\ln\left|1-\tanh x\right| + C \\ x + \ln\left(\cosh x\right) + C \end{bmatrix}$



420. $\displaystyle\int \frac{1+\sin x}{1-\sin x}\ dx = -x + 2\tan x + 2\sec x + C$



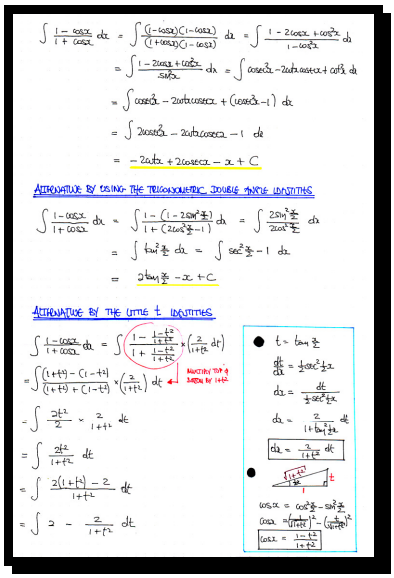
421. $$\int \frac{4}{\left(x^2-4\right)^{\frac{3}{2}}}\,dx=-\frac{x}{\sqrt{x^2-4}}+C$$

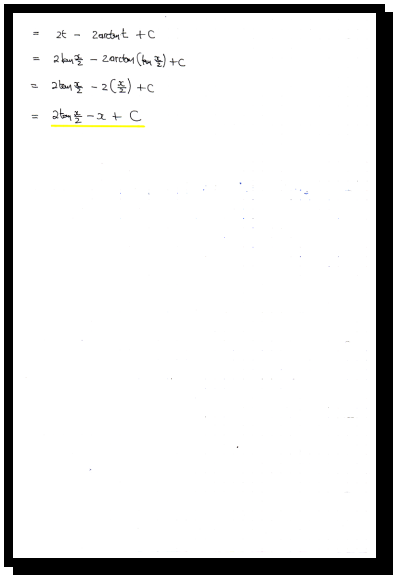


422. $$\int 4\sinh\left(\tfrac{1}{4}x\right)\,dx=16\cosh\left(\tfrac{1}{4}x\right)+C$$

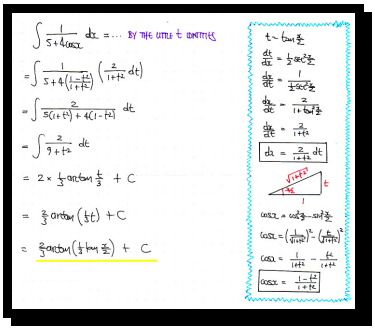


423. $$\int \frac{1-\cos x}{1+\cos x}\,dx=\begin{bmatrix}-x-2\cot x+2\operatorname{cosec} x+C\\-x-2\tan\left(\tfrac{1}{2}x\right)+C\end{bmatrix}$$

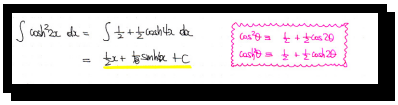




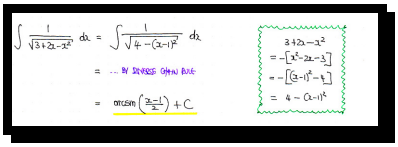
424. $\displaystyle\int \frac{1}{5+4\cos x}\,dx=\frac{2}{3}\arctan\left[\frac{1}{3}\tan\left(\frac{1}{2}x\right)\right]+C$



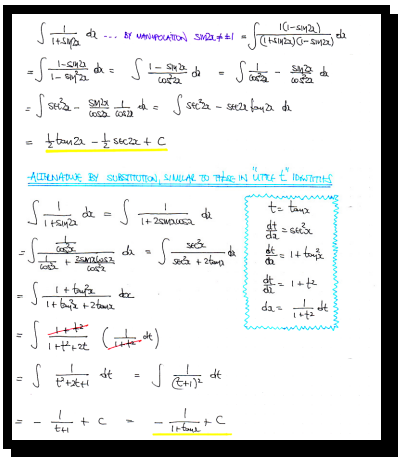
425. $\displaystyle\int \cosh^2 2x\,dx=\frac{1}{2}x+\frac{1}{2}\sinh 4x+C$



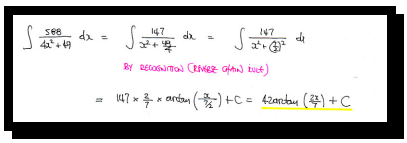
426. $\displaystyle\int \frac{1}{\sqrt{3+2x-x^2}}\,dx=\arcsin\left(\frac{x-1}{2}\right)+C$



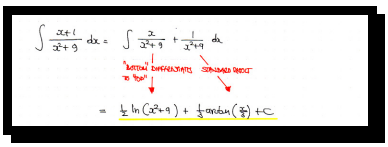
427. $$\int \frac{1}{1+\sin 2x}\,dx = \begin{bmatrix} \frac{1}{2}\tan 2x - \frac{1}{2}\sec 2x + C \\ -\frac{1}{1+\tan x} + C \end{bmatrix}$$



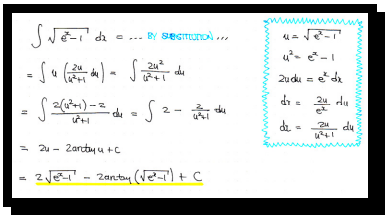
428. $$\int \frac{588}{4x^2+49}\,dx = 42\arctan\left(\frac{2}{7}x\right) + C$$



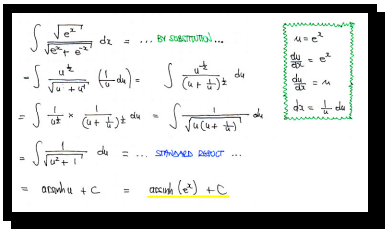
429. $$\int \frac{x+1}{x^2+9}\,dx = \frac{1}{2}\ln\left(x^2+9\right) + \frac{1}{3}\arctan\left(\frac{1}{3}x\right) + C$$



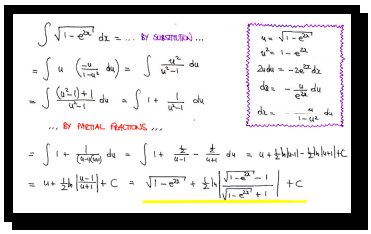
430. $\displaystyle\int \sqrt{\mathrm{e}^{x}-1}\ dx = 2\sqrt{\mathrm{e}^{x}-1}-2\arctan\left(\sqrt{\mathrm{e}^{x}-1}\right)+C$



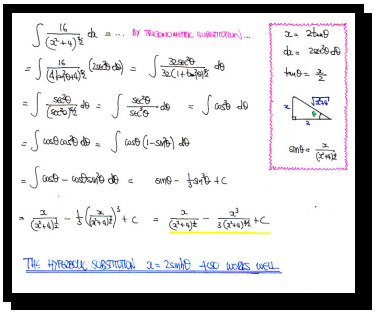
431. $\displaystyle\int \frac{\sqrt{\mathrm{e}^{x}}}{\sqrt{\mathrm{e}^{x}+\mathrm{e}^{-x}}}\ dx = \operatorname{arsinh}\left(\mathrm{e}^{x}\right)+C$



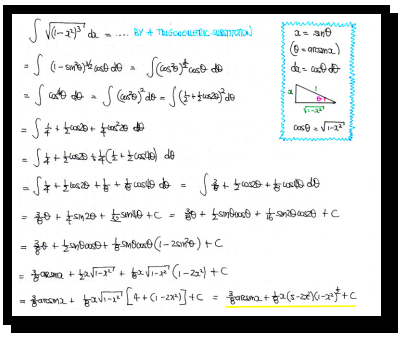
432. $\displaystyle\int \sqrt{1-\mathrm{e}^{2x}}\ dx = \sqrt{1-\mathrm{e}^{2x}}+\frac{1}{2}\ln\left|\frac{\sqrt{1-\mathrm{e}^{2x}}-1}{\sqrt{1-\mathrm{e}^{2x}}+1}\right|+C$



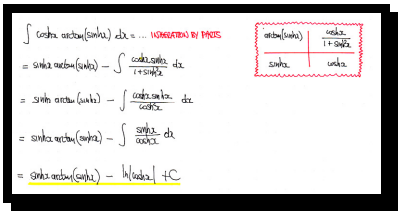
433. $$\int \frac{16}{\left(x^2+4\right)^{\frac{5}{2}}}\,dx=\frac{x}{\left(x^2+4\right)^{\frac{1}{2}}}-\frac{x^3}{3\left(x^2+4\right)^{\frac{3}{2}}}+C$$



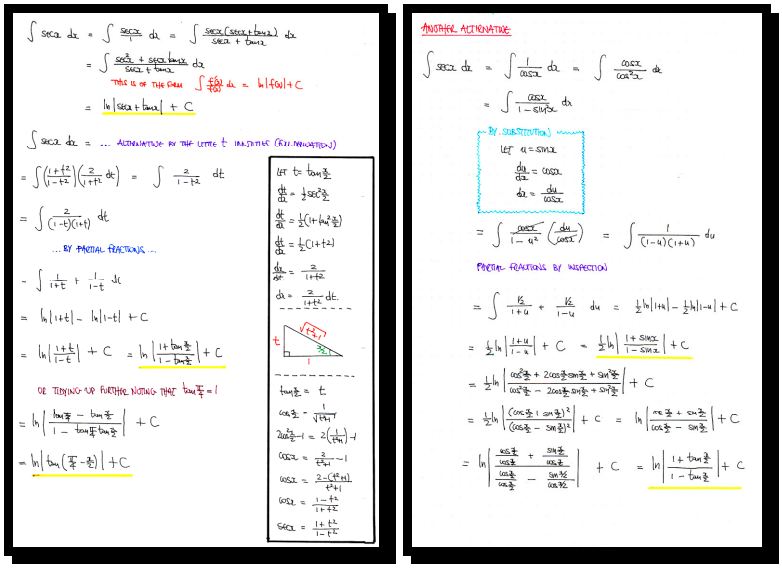
434. $$\int \sqrt{\left(1-x^2\right)^3}\,dx=\frac{3}{8}\arcsin x+\frac{1}{8}x\left(5-2x^2\right)\left(1-x^2\right)^{\frac{1}{2}}+C$$



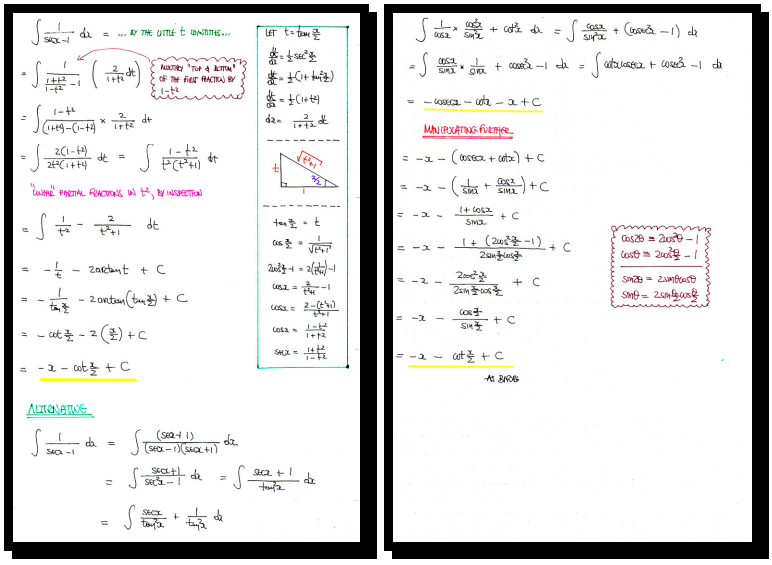
435. $$\int \cosh x\arctan\left(\sinh x\right)\,dx=\sin x\arctan\left(\sinh x\right)-\ln\left(\cosh x\right)+C$$



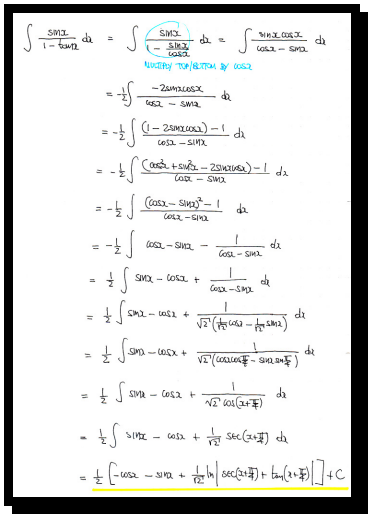
436. $$\int \sec x \ dx = \begin{bmatrix} \ln\left|\sec x+\tan x\right|+C \\ \ln\left|\tan\left(\frac{1}{4}\pi-\frac{1}{2}x\right)\right|+C \\ \frac{1}{2}\ln\left|\frac{1+\sin x}{1-\sin x}\right|+C \\ \ln\left|\frac{1+\tan\left(\frac{1}{2}x\right)}{1-\tan\left(\frac{1}{2}x\right)}\right|+C \end{bmatrix}$$



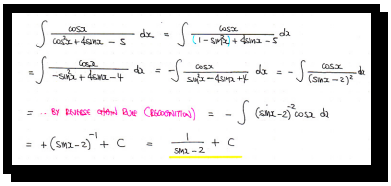
437. $$\int \frac{1}{\sec x-1} \ dx = \begin{bmatrix} -x-\cot\left(\frac{1}{2}x\right)+C \\ -x-\cot x-\operatorname{cosec} x+C \end{bmatrix}$$



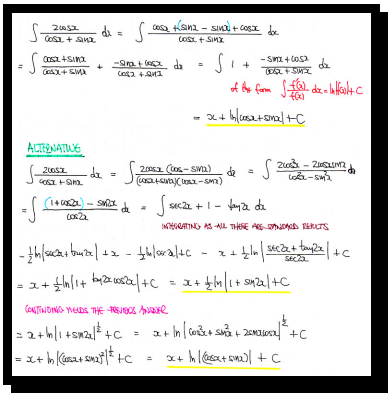
438. $$\int \frac{\sin x}{1-\tan x}\,dx=\frac{1}{2}\left[-\cos x-\sin x+\frac{1}{\sqrt{2}}\ln\left|\sec\left(x+\frac{1}{4}\pi\right)\right|+\tan\left(x+\frac{1}{4}\pi\right)\right]+C$$



439. $$\int \frac{\cos x}{\cos^2 x+4\sin x-5}\,dx=\frac{1}{\sin x-2}+C$$

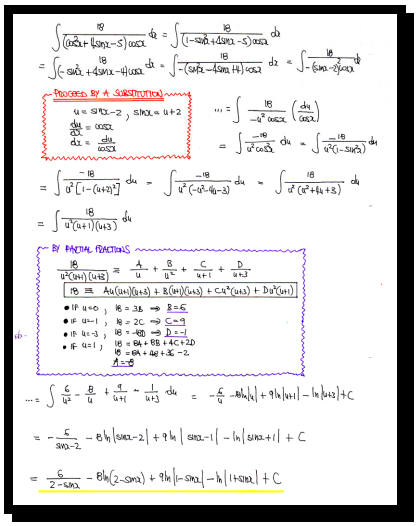


440. $$\int \frac{2\cos x}{\cos x+\sin x}\,dx=\begin{bmatrix} x+\ln\left|\cos x+\sin x\right|+C \\ x+\frac{1}{2}\ln\left|1+\sin 2x\right|+C \end{bmatrix}$$

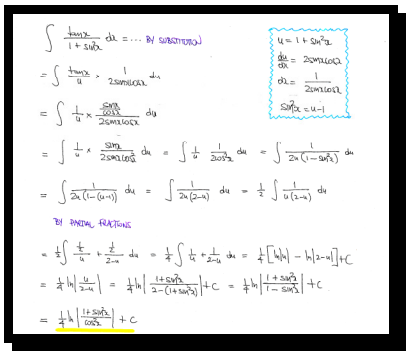


441. $$\int \frac{18}{\left(\cos^2 x+4\sin x-5\right)\cos x}\,dx=\ldots$$

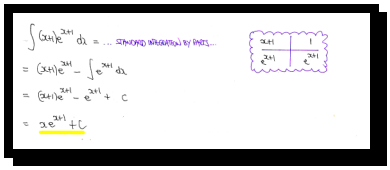
$$=\ldots\frac{6}{2-\sin x}-8\ln\left(2-\sin x\right)+9\ln\left|1-\sin x\right|-\ln\left|1-\sin x\right|+C$$



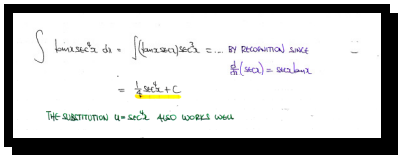
442. $$\int \frac{\tan x}{1+\sin^2 x}\,dx=\frac{1}{4}\ln\left|\frac{1+\sin^2 x}{\cos^2 x}\right|+C$$



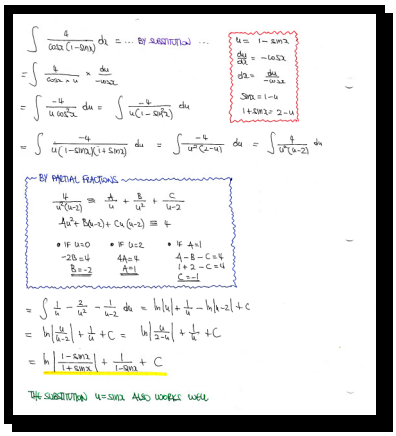
443. $$\int (x+1)\mathrm{e}^{x+1}\,dx=x\mathrm{e}^{x+1}+C$$



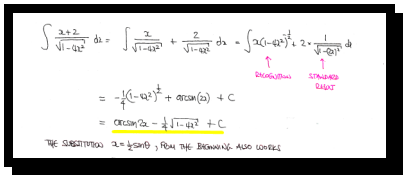
444. $\displaystyle\int \tan x \sec^4 x \; dx = \frac{1}{4}\sec^4 x + C$



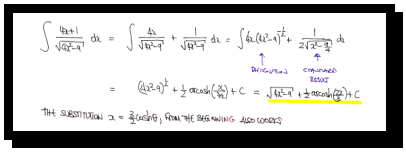
445. $\displaystyle\int \frac{4}{(1-\sin x)\cos x}\; dx = \ln\left|\frac{1-\sin x}{1+\sin x}\right| + \frac{1}{1-\sin x} + C$



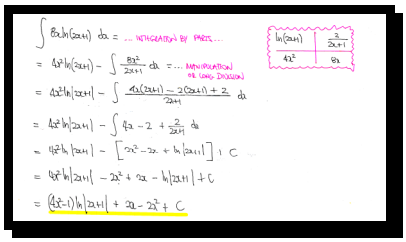
446. $\displaystyle\int \frac{x+2}{\sqrt{1-4x^2}}\; dx = \arcsin(2x) - \frac{1}{4}\sqrt{1-4x^2} + C$



447. $\displaystyle\int \frac{4x+1}{\sqrt{4x^2-9}}\,dx=\sqrt{4x^2-9}+\frac{1}{2}\operatorname{arcosh}\left(\frac{2x}{3}\right)+C$



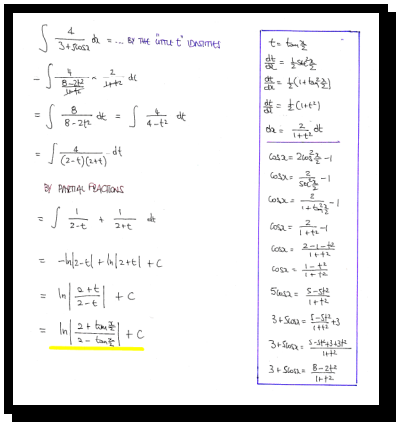
448. $\displaystyle\int 8x\ln(2x+1)\,dx=\left(4x^2-1\right)\ln(2x+1)+4x-2x^2+C$



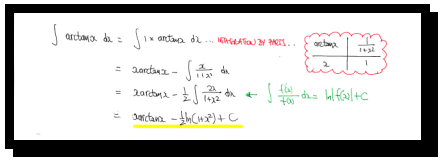
449. $\displaystyle\int \cos 3x\sin 6x\,dx=\begin{cases}-\frac{2}{9}\cos^2 3x+C\\ -\frac{1}{18}\left[\cos 9x+3\cos 3x\right]+C\\ -\frac{1}{9}\left[2\cos 3x\cos 6x+\sin 3x\sin 6x\right]+C\end{cases}$



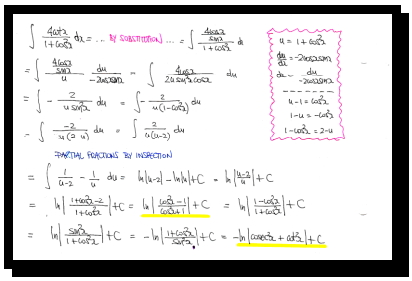
450. $$\int \frac{4}{3+5\cos x}\,dx = \ln\left|\frac{2+\tan\left(\frac{1}{2}x\right)}{2-\tan\left(\frac{1}{2}x\right)}\right| + C$$



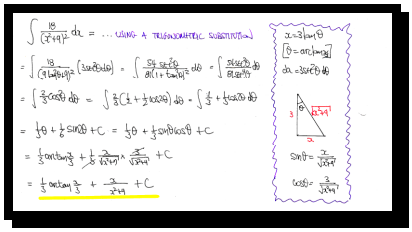
451. $$\int \arctan x\;\,dx = x\arctan x - \frac{1}{2}\ln\left(1+x^2\right) + C$$



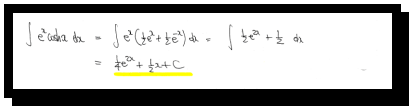
452. $$\int \frac{4\cot x}{1+\cos^2 x}\,dx = \begin{cases} \ln\left|\dfrac{1-\cos^2 x}{1+\cos^2 x}\right| + C \\ -\ln\left|\operatorname{cosec}^2 x + \cot^2 x\right| + C \end{cases}$$



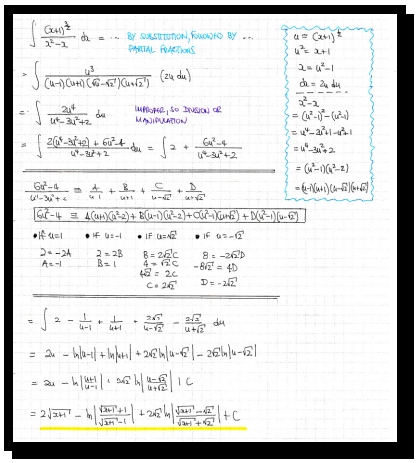
453. $$\int \frac{18}{\left(x^2+9\right)^2}\,dx=\frac{1}{3}\arctan\left(\frac{1}{3}x\right)+\frac{x}{x^2+9}+C$$



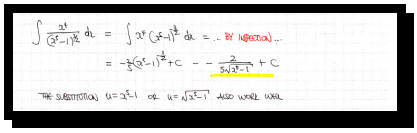
454. $$\int \mathrm{e}^x\cosh x\;dx=\frac{1}{4}\mathrm{e}^{2x}+\frac{1}{2}x+C$$



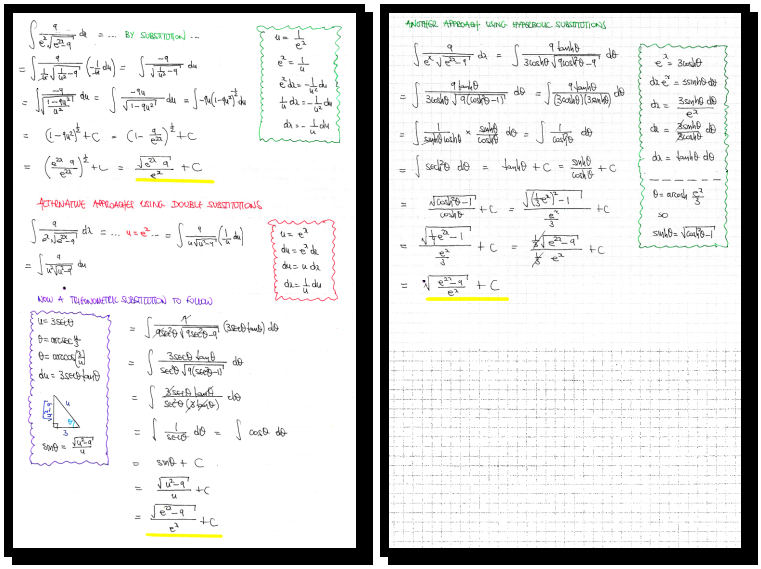
455. $$\int \frac{(x+1)^{\frac{3}{2}}}{x^2-x}\,dx=2\sqrt{x+1}-\ln\left|\frac{\sqrt{x+1}+1}{\sqrt{x+1}-1}\right|+2\sqrt{2}\,\mathrm{n}\left|\frac{\sqrt{x+1}-\sqrt{2}}{\sqrt{x+1}+\sqrt{2}}\right|+C$$



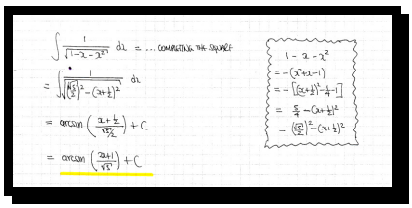
456. $$\int \frac{x^4}{\left(x^5-1\right)^{\frac{3}{2}}}\,dx=-\frac{2}{5\sqrt{x^5-1}}+C$$



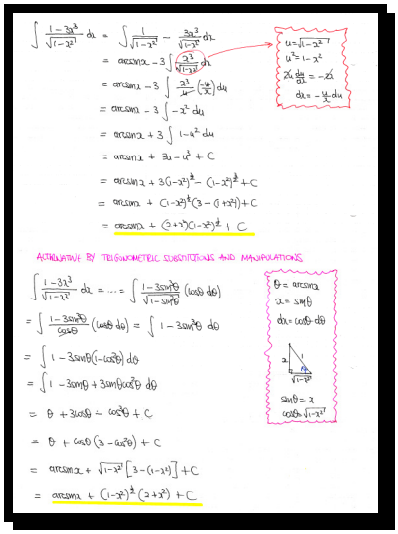
457. $$\int \frac{9}{e^x\sqrt{e^{2x}-9}}\,dx=\frac{\sqrt{e^{2x}-9}}{e^x}+C$$



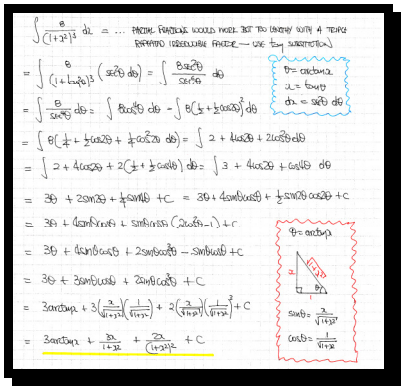
458. $$\int \frac{1}{\sqrt{1-x-x^2}}\,dx=\arcsin\left(\frac{2x+1}{\sqrt{5}}\right)+C$$



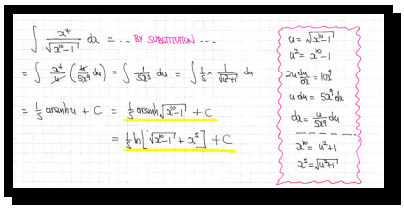
459. $$\int \frac{1-3x^3}{\sqrt{1-x^2}}\,dx = \arcsin x + \left(2+x^2\right)\sqrt{1-x^2} + C$$



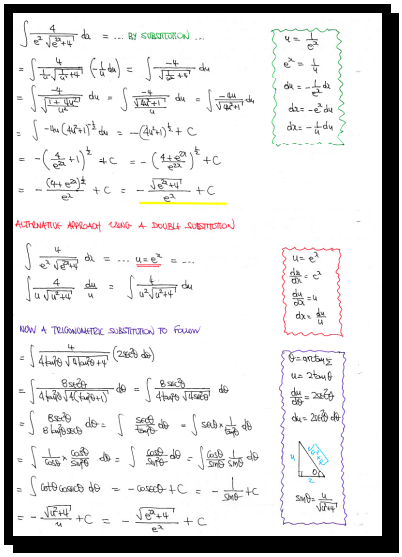
460. $$\int \frac{8}{\left(1+x^2\right)^3}\,dx = 3\arctan x + \frac{3x}{1+x^2} + \frac{2x}{\left(1+x^2\right)^2} + C$$

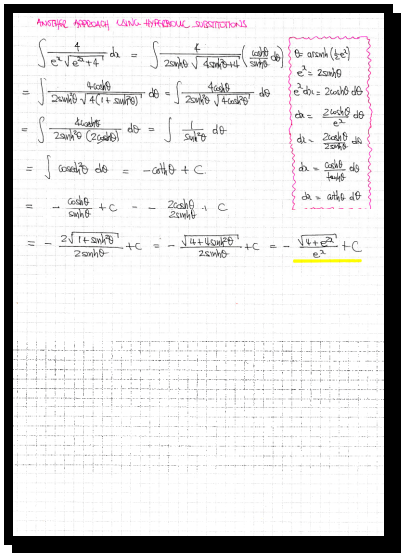


461. $$\int \frac{x^4}{\sqrt{x^{10}-1}}\,dx=\begin{bmatrix}\frac{1}{5}\operatorname{arsinh}\left[\sqrt{x^{10}-1}\right]+C\\ \frac{1}{5}\ln\left[x^5+\sqrt{x^{10}-1}\right]+C\end{bmatrix}$$

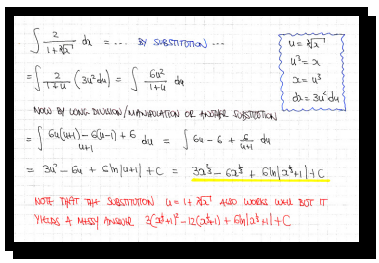


462. $$\int \frac{4}{e^x\sqrt{e^{2x}+4}}\,dx=-\frac{\sqrt{e^{2x}+4}}{e^x}+C$$

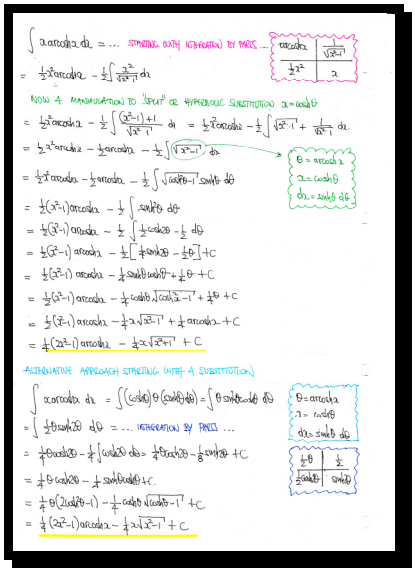




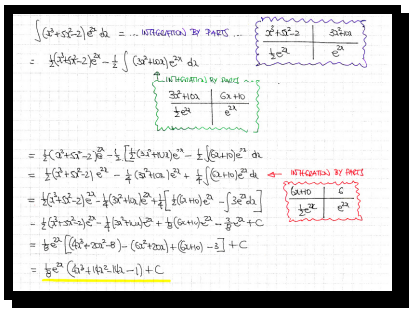
463. $$\int \frac{2}{1+\sqrt[3]{x}}\,dx=3x^{\frac{2}{3}}-6x^{\frac{1}{3}}+6\ln\left|1+x^{\frac{1}{3}}\right|+C$$



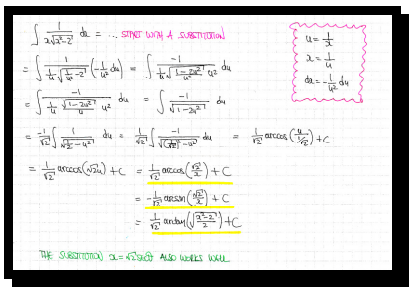
464. $\displaystyle\int x\operatorname{arcosh} x\ dx=\frac{1}{2}\left(2x^2-1\right)\operatorname{arcosh} x-\frac{1}{4}x\sqrt{x^2-1}+C$



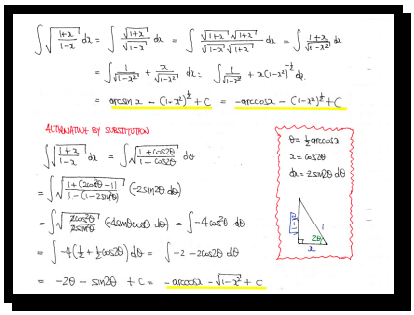
465. $\displaystyle\int \left(x^3+5x^2-2\right)\mathrm{e}^{2x}\ dx=\frac{1}{8}\left(4x^3+14x^2-14x-1\right)\mathrm{e}^{2x}+C$



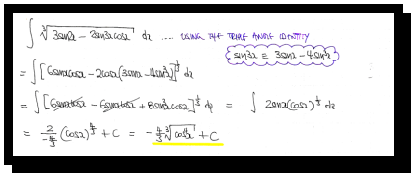
466. $$\int \frac{1}{x\sqrt{x^2-2}}\,dx = \begin{cases} \dfrac{1}{\sqrt{2}}\arccos\left[\dfrac{\sqrt{2}}{x}\right]+C \\ -\dfrac{1}{\sqrt{2}}\arcsin\left[\dfrac{\sqrt{2}}{x}\right]+C \\ \dfrac{1}{\sqrt{2}}\arctan\left[\dfrac{\sqrt{x^2-2}}{2}\right]+C \end{cases}$$



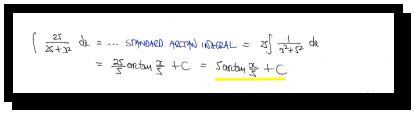
467. $$\int \sqrt{\frac{1+x}{1-x}}\,dx = \begin{cases} \arcsin x-\sqrt{1-x^2}+C \\ -\arccos x-\sqrt{1-x^2}+C \end{cases}$$



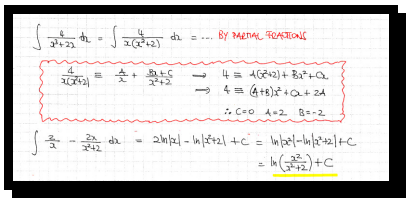
468. $$\int \sqrt[3]{3\sin 2x-2\sin 3x\cos x}\,dx = -\frac{4}{3}\sqrt[3]{\cos^4 x}+C$$



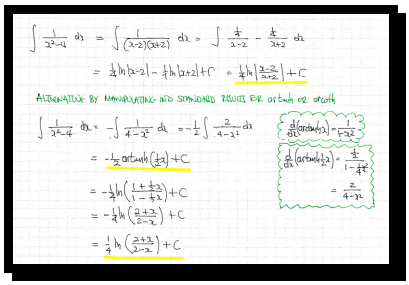
469. $\displaystyle\int \frac{25}{25+x^2}\,dx = 5\arctan\left(\frac{1}{5}x\right)+C$



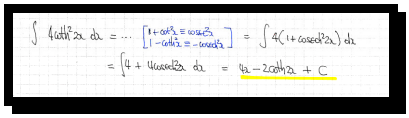
470. $\displaystyle\int \frac{4}{x^3+2x}\,dx = \ln\left[\frac{x^2}{x^2+2}\right]+C$



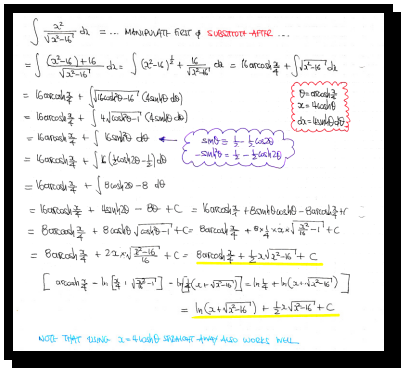
471. $\displaystyle\int \frac{1}{x^2-4}\,dx = \begin{cases} \dfrac{1}{4}\ln\left|\dfrac{x-2}{x+2}\right|+C \\ -\dfrac{1}{2}\operatorname{artanh}\left[\dfrac{2+x}{2-x}\right]+C \end{cases}$



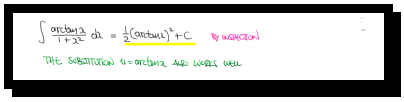
472. $\displaystyle\int 4\coth^2 2x\;dx = 4x-2\coth 2x+C$



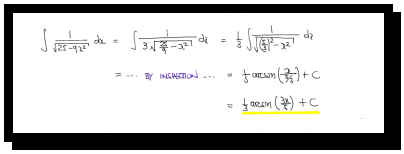
473. $$\int \frac{x^2}{\sqrt{x^2-16}}\,dx = \begin{cases} 8\operatorname{arcosh}\left(\frac{1}{4}x\right)+\frac{1}{2}x\sqrt{x^2-16}+C \\ \ln\left(x+\sqrt{x^2-16}\right)+\frac{1}{2}x\sqrt{x^2-16}+C \end{cases}$$



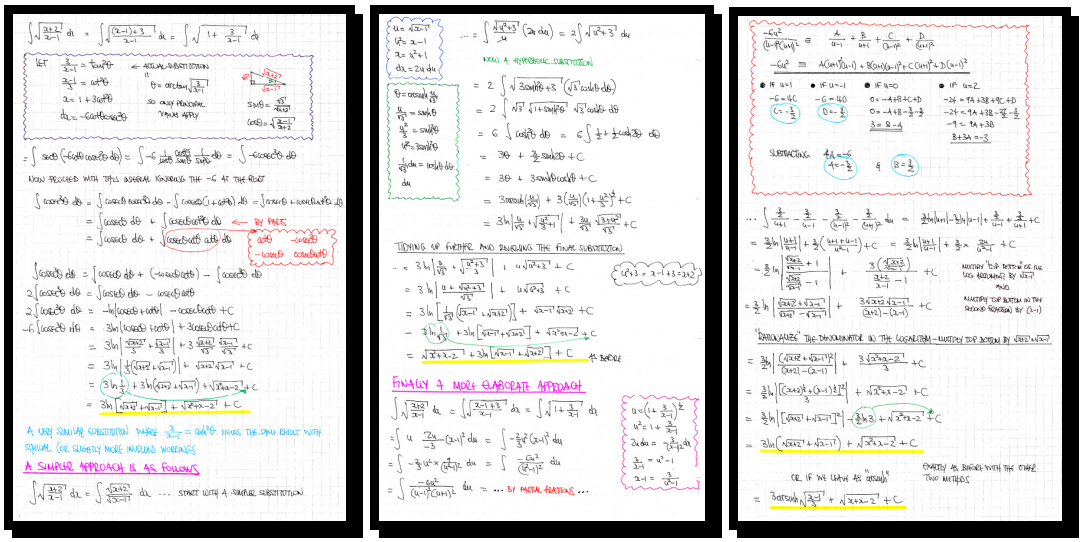
474. $$\int \frac{\arctan x}{1+x^2}\,dx = \frac{1}{2}(\arctan x)^2 + C$$



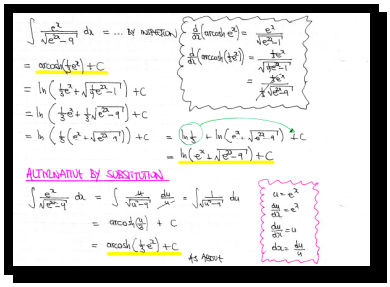
475. $$\int \frac{1}{\sqrt{25-9x^2}}\,dx = \frac{1}{3}\arcsin\left(\frac{3}{5}x\right)+C$$



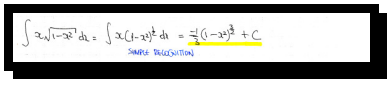
476. $$\int \frac{\sqrt{x+2}}{\sqrt{x-1}}\,dx = \begin{cases} 3\ln\left[\sqrt{x+2}+\sqrt{x-1}\right]+\sqrt{x^2+x-2}+C \\ 3\operatorname{arsinh}\sqrt{\dfrac{x-1}{3}}+\sqrt{x^2+x-2}+C \end{cases}$$



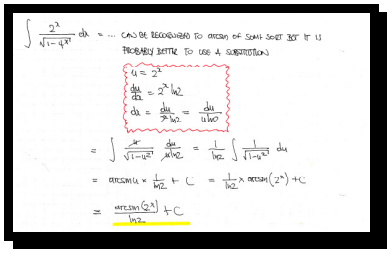
477. $$\int \frac{e^x}{\sqrt{e^{2x}-9}}\,dx = \begin{cases} \ln\left[e^x+\sqrt{e^{2x}-9}\right]+C \\ \operatorname{arcosh}\left[\dfrac{1}{3}e^x\right]+C \end{cases}$$



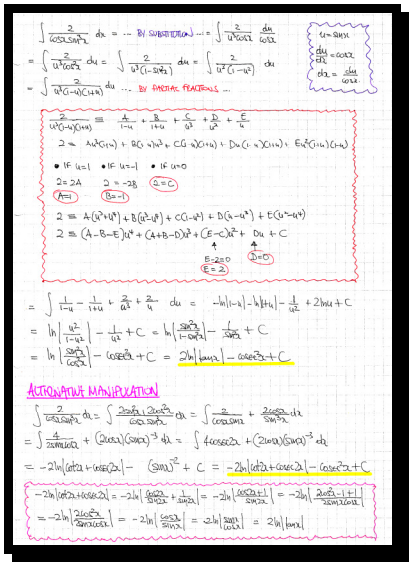
478. $$\int x\sqrt{1-x^2}\,dx = -\frac{1}{3}\left(1-x^2\right)^{\frac{3}{2}}+C$$



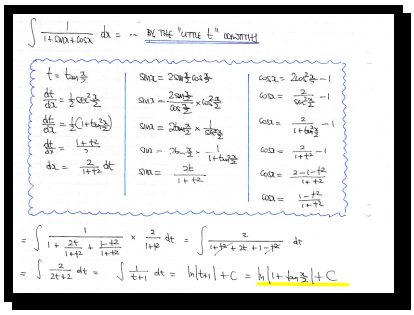
479. $$\int \frac{2^x}{\sqrt{1-4^x}}\,dx=\frac{\arcsin\left(2^x\right)}{\ln 2}+C$$



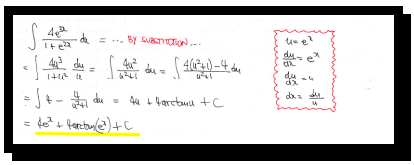
480. $$\int \frac{2}{\cos x\sin^3 x}\,dx=\begin{cases}2\ln|\tan x|-\operatorname{cosec}^2 x+C\\-2\ln|\cot 2x+\operatorname{cosec}2x|-\operatorname{cosec}^2 x+C\end{cases}$$



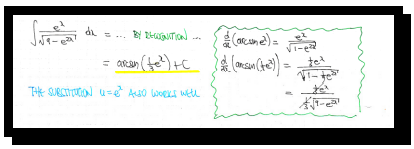
481. $\displaystyle\int \frac{1}{1+\sin x+\cos x}\,dx=\ln\left|1+\tan\left(\frac{1}{2}x\right)\right|+C$



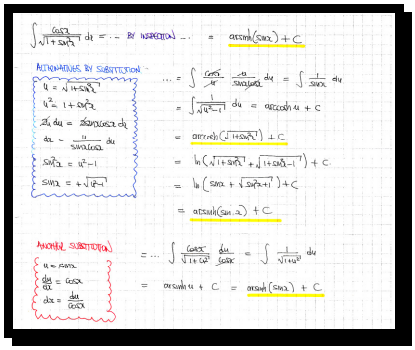
482. $\displaystyle\int \frac{4\mathrm{e}^{3x}}{1+\mathrm{e}^{2x}}\,dx=4\mathrm{e}^{x}+\arctan\left(\mathrm{e}^{x}\right)+C$



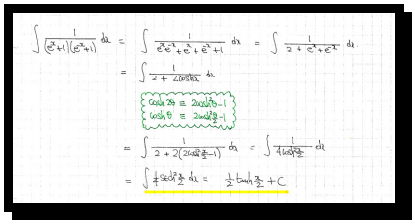
483. $\displaystyle\int \frac{\mathrm{e}^{x}}{\sqrt{9-\mathrm{e}^{2x}}}\,dx=\arcsin\left(\frac{1}{3}\mathrm{e}^{x}\right)+C$



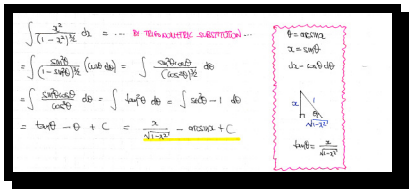
484. $$\int \frac{\cos x}{\sqrt{1+\sin^2 x}}\,dx = \begin{bmatrix} \operatorname{arsinh}(\sin x)+C \\ \operatorname{arcosh}\left(1+\sin^2 x\right)+C \end{bmatrix}$$



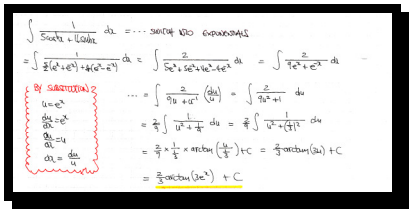
485. $$\int \frac{1}{\left(\mathrm{e}^x+1\right)\left(\mathrm{e}^x-1\right)}\,dx = \frac{1}{2}\tanh\left(\frac{1}{2}x\right)+C$$



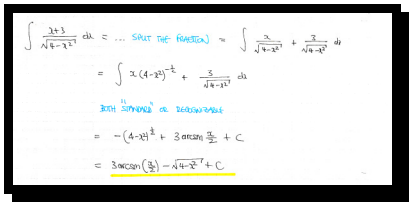
486. $$\int \frac{x^2}{\left(1-x^2\right)^{\frac{3}{2}}}\,dx = \frac{x}{\sqrt{1-x^2}} - \arcsin x + C$$



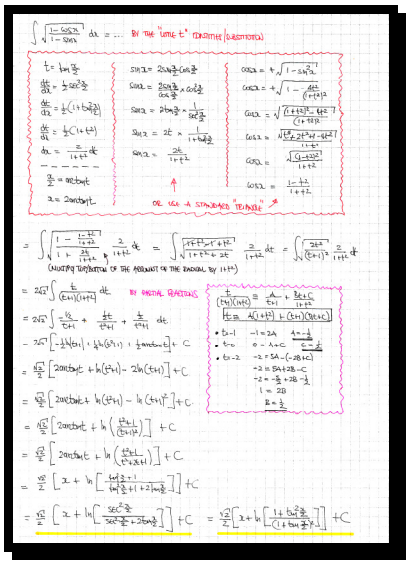
487. $$\int \frac{1}{5\cosh x+4\sinh x}\,dx=\frac{2}{3}\arctan\left(3\mathrm{e}^{x}\right)+C$$



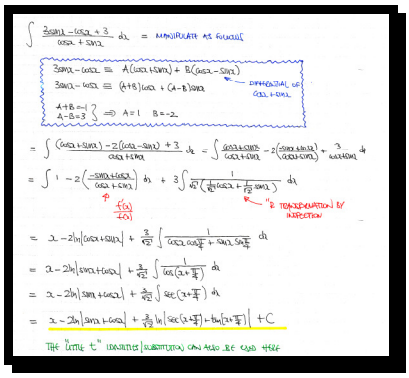
488. $$\int \frac{x+3}{\sqrt{4-x^2}}\,dx=3\arcsin\left(\frac{1}{2}x\right)-\sqrt{4-x^2}+C$$



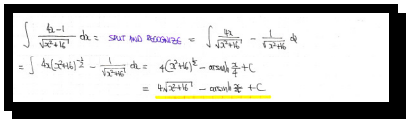
489. $$\int \sqrt{\frac{1-\cos x}{1-\sin x}}\,dx = \begin{bmatrix} \dfrac{1}{\sqrt{2}}\left[x+\ln\left[\dfrac{\sec^2\left(\frac{1}{2}x\right)}{\sec^2\left(\frac{1}{2}x\right)+2\tan\left(\frac{1}{2}x\right)}\right]\right]+C \\ \dfrac{1}{\sqrt{2}}\left[x+\ln\left[\dfrac{1+\tan^2\left(\frac{1}{2}x\right)}{\left[1+\tan\left(\frac{1}{2}x\right)\right]^2}\right]\right]+C \end{bmatrix}$$



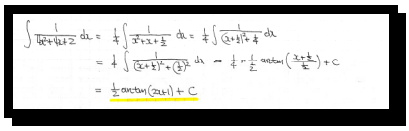
490. $$\int \frac{3\sin x-\cos x+3}{\cos x+\sin x}\,dx = x-2\ln\left|\sin x+\cos x\right|+\frac{3}{\sqrt{2}}\ln\left|\tan\left(x+\frac{1}{4}\pi\right)+\sec\left(x+\frac{1}{4}\pi\right)\right|+C$$



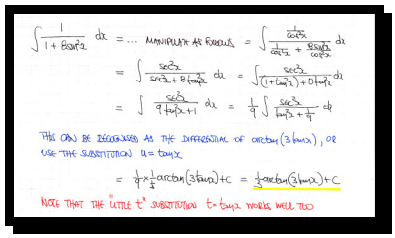
491. $$\int \frac{4x-1}{\sqrt{x^2+16}}\,dx = 4\sqrt{x^2+16} - \operatorname{arsinh}\left(\frac{1}{4}x\right) + C$$



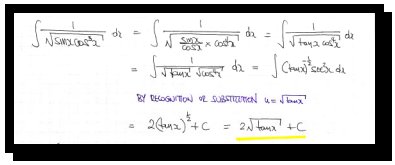
492. $$\int \frac{1}{4x^2+4x+2}\,dx = \frac{1}{2}\arctan(2x+1) + C$$



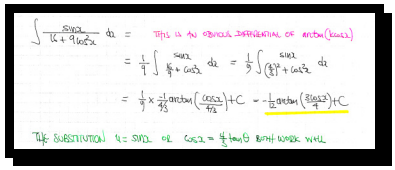
493. $$\int \frac{1}{1+8\sin^2 x}\,dx = \frac{1}{3}\arctan(3\tan x) + C$$



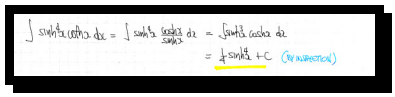
494. $$\int \frac{1}{\sqrt{\sin x \cos^3 x}}\,dx = 2\sqrt{\tan x} + C$$



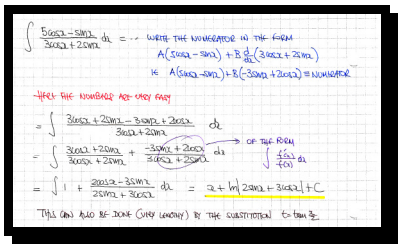
495. $$\int \frac{\sin x}{16+9\cos^2 x}\,dx=-\frac{1}{12}\arctan\left(\frac{3\cos x}{4}\right)+C$$



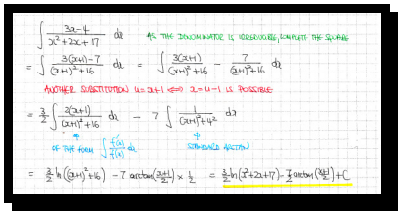
496. $$\int \sinh^4 x\coth x\,dx=\frac{1}{4}\sinh^4 x+C$$



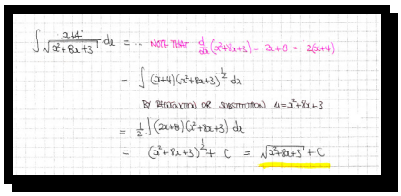
497. $$\int \frac{5\cos x-\sin x}{3\cos x+2\sin x}\,dx=x+\ln\left|3\cos x+2\sin x\right|+C$$



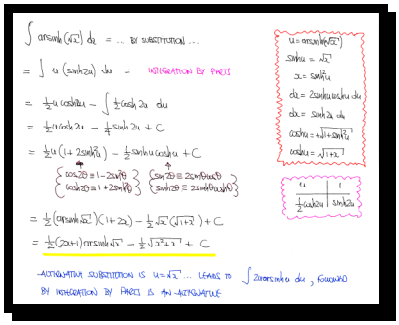
498. $$\int \frac{3x-4}{x^2+2x+17}\,dx=\frac{3}{2}\ln\left(x^2+2x+17\right)-\frac{7}{2}\arctan\left(\frac{x+1}{2}\right)+C$$



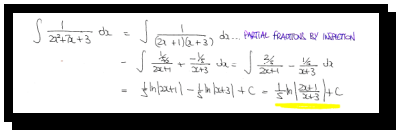
499. $\displaystyle\int \frac{x+4}{\sqrt{x^2+8x+3}}\,dx=\sqrt{x^2+8x+3}+C$



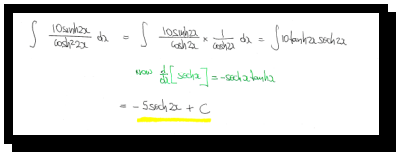
500. $\displaystyle\int \operatorname{arsinh}\left(\sqrt{x}\right)\,dx=\frac{1}{2}x(2x+1)\operatorname{arsinh}\left(\sqrt{x}\right)-\frac{1}{2}\sqrt{x^2+x}+C$



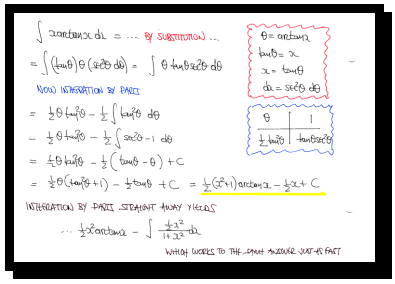
501. $\displaystyle\int \frac{1}{2x^2+7x+3}\,dx=\frac{1}{5}\ln\left|\frac{2x+1}{x+3}\right|+C$



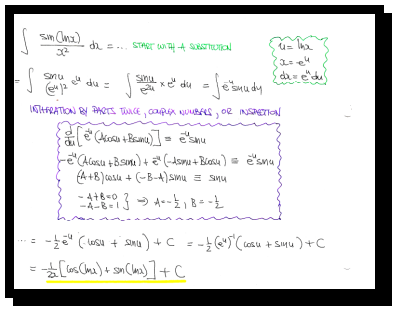
502. $\displaystyle\int \frac{10\sinh 2x}{\cosh^2 2x}\,dx=-5\operatorname{sech}2x+C$



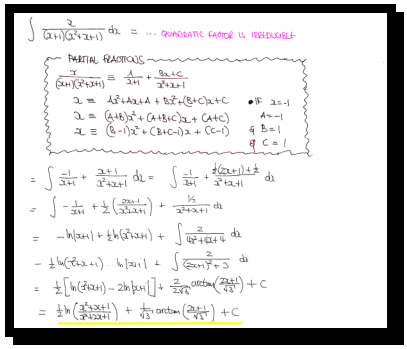
503. $\displaystyle\int x\arctan x\ dx=\frac{1}{2}\left(x^2+1\right)\arctan x-\frac{1}{2}x+C$



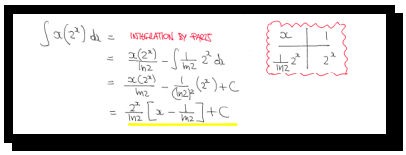
504. $\displaystyle\int \frac{\sin\left(\ln x\right)}{x^2}\ dx=-\frac{1}{2x}\left[\cos\left(\ln x\right)+\sin\left(\ln x\right)\right]+C$



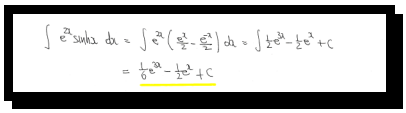
505. $\displaystyle\int \frac{x}{\left(x+1\right)\left(x^2+x+1\right)}\ dx=\frac{1}{2}\ln\left(\frac{x^2+x+1}{x^2+2x+1}\right)+\frac{1}{\sqrt{3}}\arctan\left(\frac{2x+1}{\sqrt{3}}\right)+C$



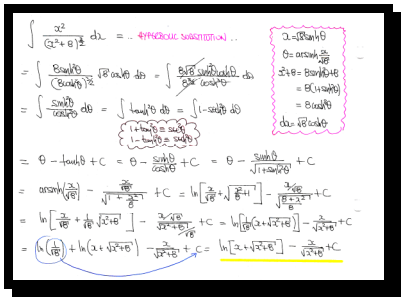
506. $\displaystyle\int x\left(2^x\right)\,dx=\frac{2^x}{\ln 2}\left[x-\frac{1}{\ln 2}\right]+C$



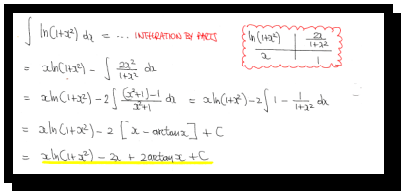
507. $\displaystyle\int \mathrm{e}^{2x}\sinh x\,\,dx=\frac{1}{6}\mathrm{e}^{3x}-\frac{1}{2}\mathrm{e}^{x}+C$



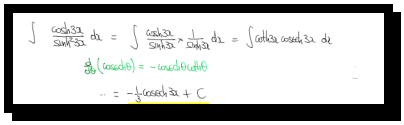
508. $\displaystyle\int \frac{x^2}{\left(x^2+8\right)^{\frac{3}{2}}}\,dx=\ln\left[x+\sqrt{x^2+8}\right]-\frac{x}{\sqrt{x^2+8}}+C$



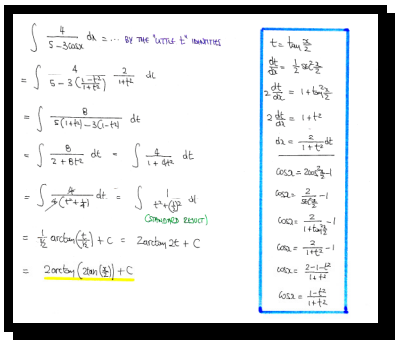
509. $\displaystyle\int \ln\left(1+x^2\right)\,dx=x\ln\left(1+x^2\right)-2x+2\arctan x+C$



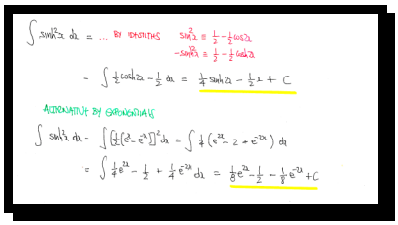
510. $\displaystyle\int \frac{\cosh 3x}{\sinh^2 3x}\,dx = -\frac{1}{3}\operatorname{cosech} 3x + C$



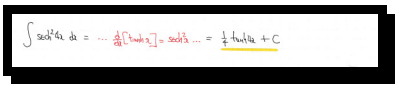
511. $\displaystyle\int \frac{4}{5-3\cos x}\,dx = 2\arctan\left[2\tan\left(\frac{1}{2}x\right)\right] + C$



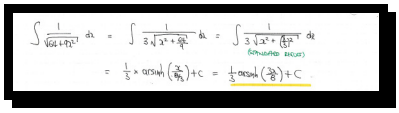
512. $\displaystyle\int \sinh^2 x\,dx = \begin{bmatrix} \frac{1}{2}\sinh 2x - \frac{1}{2}x + C \\ \frac{1}{8}\mathrm{e}^{2x} - \frac{1}{2} - \frac{1}{8}\mathrm{e}^{-2x} + C \end{bmatrix}$



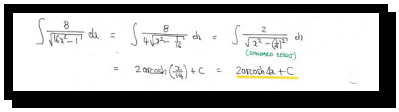
513. $\displaystyle\int \operatorname{sech}^2 4x\,dx = \frac{1}{4}\tanh 4x + C$



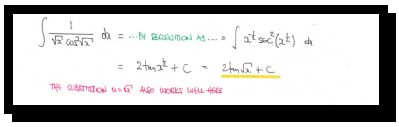
514. $$\int \frac{1}{\sqrt{64+9x^2}}\,dx=\frac{1}{3}\operatorname{arsinh}\left(\frac{3}{8}x\right)+C$$



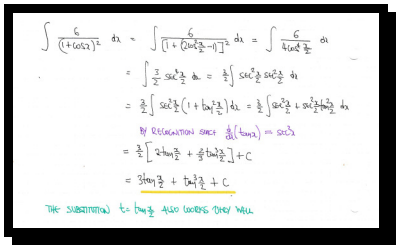
515. $$\int \frac{8}{\sqrt{16x^2-1}}\,dx=2\operatorname{arcosh}4x+C$$



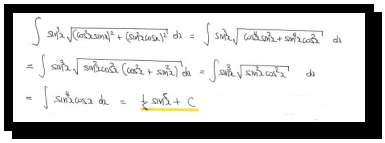
516. $$\int \frac{1}{\sqrt{x}\cos^2\sqrt{x}}\,dx=2\tan\sqrt{x}+C$$



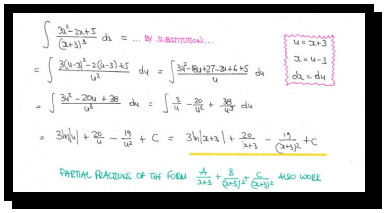
517. $$\int \frac{6}{(1+\cos x)^2}\,dx=3\tan\left(\frac{1}{2}x\right)+\tan^3\left(\frac{1}{2}x\right)+C$$



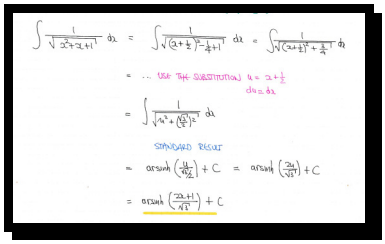
518. $\displaystyle\int \sin^3 x\sqrt{\left(\cos^2 x\sin x\right)^2+\left(\sin^2 x\cos x\right)^2}\,dx=\frac{1}{5}\sin^5 x+C$



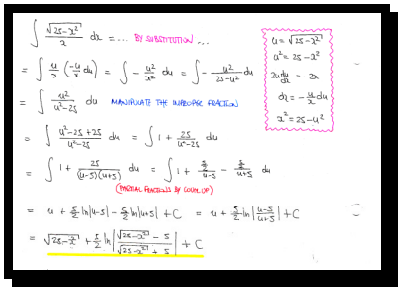
519. $\displaystyle\int \frac{3x^2-2x+5}{(x+3)^2}\,dx=3\ln|x+3|+\frac{20}{x+3}-\frac{19}{(x+3)^2}+C$



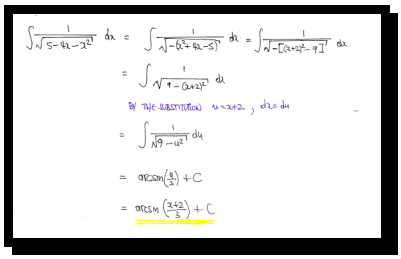
520. $\displaystyle\int \frac{1}{\sqrt{x^2+x+1}}\,dx=\operatorname{arsinh}\left(\frac{2x+1}{\sqrt{3}}\right)+C$



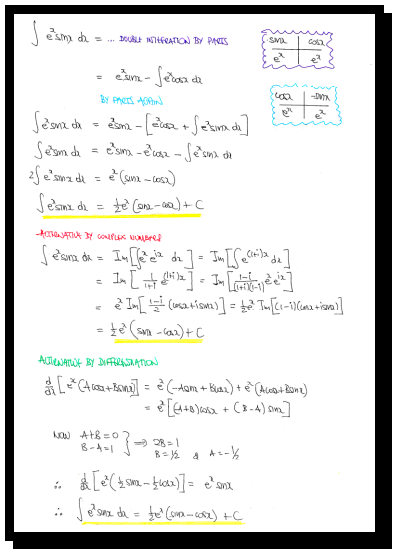
521. $$\int \frac{\sqrt{25-x^2}}{x}\,dx=\sqrt{25-x^2}+\frac{5}{2}\ln\left|\frac{\sqrt{25-x^2}-5}{\sqrt{25-x^2}+5}\right|+C$$



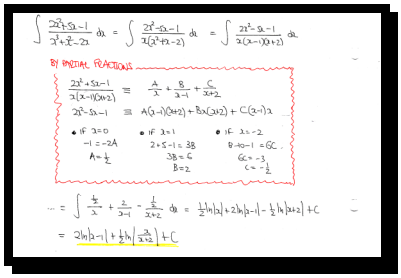
522. $$\int \frac{1}{\sqrt{5-4x-x^2}}\,dx=\arcsin\left(\frac{x+2}{3}\right)+C$$



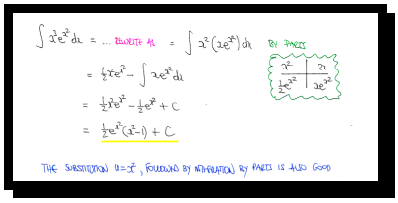
523. $$\int \mathrm{e}^x\sin x\,dx=\frac{1}{2}\mathrm{e}^x\left(\sin x-\cos x\right)+C$$



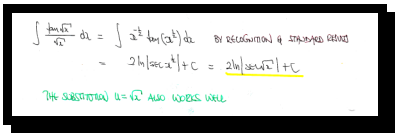
524. $$\int \frac{2x^2+5x-1}{x^3+x^2-2x}\,dx = 2\ln|x-1|+\frac{1}{2}\ln\left|\frac{x}{x+2}\right|+C$$



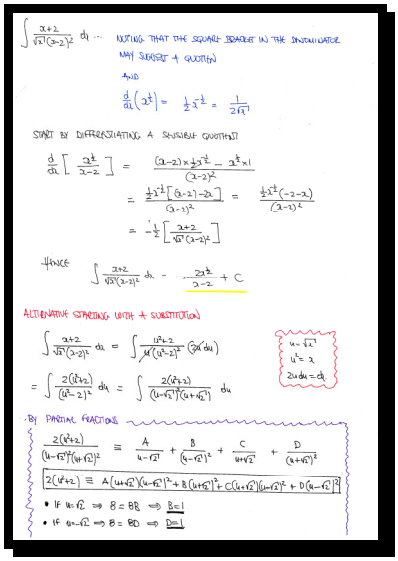
525. $$\int x^3 \mathrm{e}^{x^2}\sin x\,dx = \frac{1}{2}\mathrm{e}^{x^2}\left(x^2-1\right)+C$$

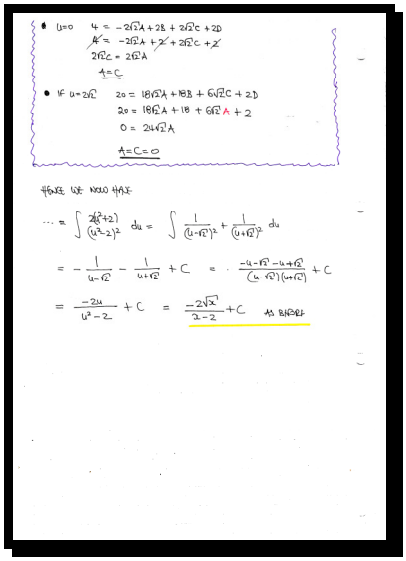


526. $$\int \frac{\tan\sqrt{x}}{\sqrt{x}}\,dx = 2\ln\left|\sec\sqrt{x}\right|+C$$

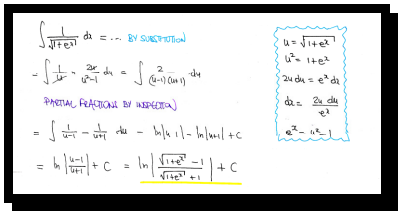


527. $$\int \frac{x+2}{(x-2)^2\sqrt{x}}\,dx = -\frac{2\sqrt{x}}{x-2} + C$$

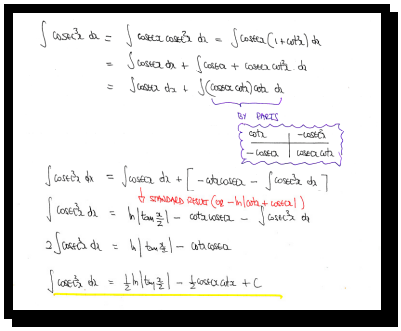




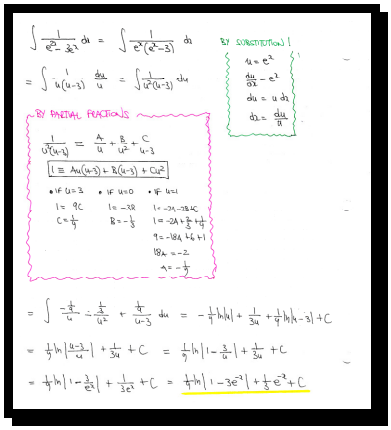
528. $$\int \frac{1}{\sqrt{1+\mathrm{e}^x}}\,dx = \ln\left|\frac{\sqrt{1+\mathrm{e}^x}-1}{\sqrt{1+\mathrm{e}^x}+1}\right| + C$$



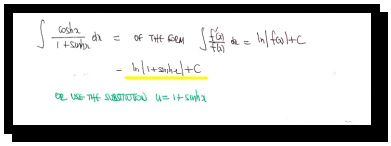
529. $$\int \operatorname{cosec}^3 x \, dx = \begin{bmatrix} \frac{1}{2}\ln\left|\tan\left(\frac{1}{2}x\right)\right| - \frac{1}{2}\operatorname{cosec} x \cot x + C \\ -\ln\left|\cot x + \operatorname{cosec} x\right| - \frac{1}{2}\operatorname{cosec} x \cot x + C \end{bmatrix}$$



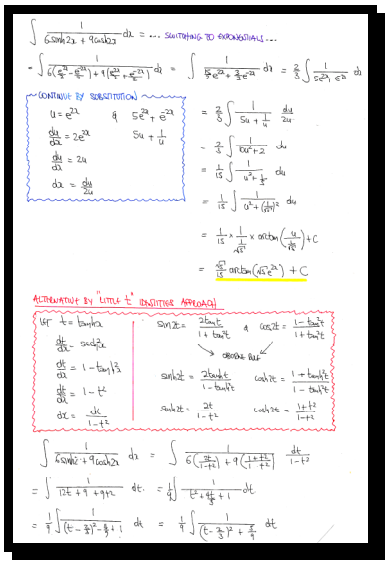
530. $$\int \frac{1}{e^{2x} - 3e^{x}} \, dx = \frac{1}{9}\ln\left|1 - 3e^{-x}\right| - \frac{1}{3}e^{-x} + C$$

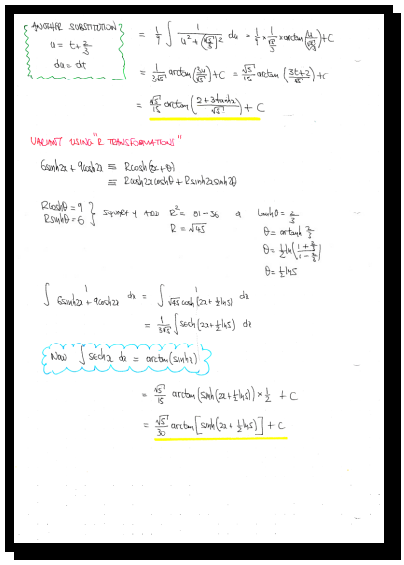


531. $$\int \frac{\cosh x}{1 + \sinh x} \, dx = \ln\left|1 + \sinh x\right| + C$$

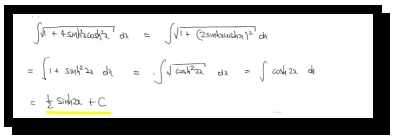


532. $$\int \frac{1}{6\sinh 2x \ + \ 9\cosh 2x}\,dx = \begin{cases} \dfrac{\sqrt{5}}{15}\arctan\left(\sqrt{5}\ \mathrm{e}^{2x}\right)+C \\ \dfrac{\sqrt{5}}{15}\arctan\left(\dfrac{2+3\tanh x}{\sqrt{5}}\right)+C \\ \dfrac{\sqrt{5}}{30}\arctan\left[\sinh\left(2x+\dfrac{1}{2}\ln 5\right)\right]+C \end{cases}$$

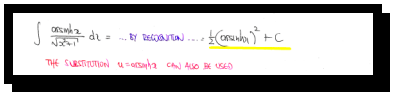




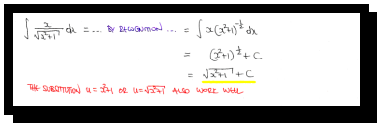
533. $$\int \sqrt{1+4\sinh^2 x\cosh^2 x}\ dx = \frac{1}{2}\sinh 2x + C$$



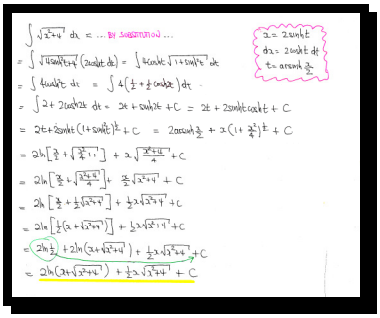
534. $$\int \frac{\operatorname{arsinh} x}{\sqrt{x^2+1}}\,dx = \frac{1}{2}\left(\operatorname{arsinh}\right)^2 + C$$



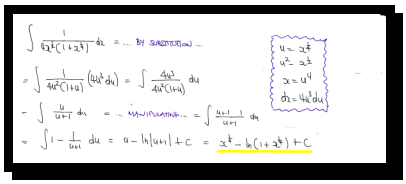
535. $$\int \frac{x}{\sqrt{x^2+1}}\,dx=\sqrt{x^2+1}+C$$



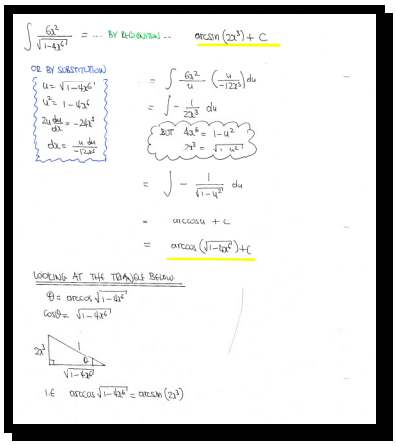
536. $$\int \sqrt{x^2+4}\,dx=2\ln\left(x+\sqrt{x^2+4}\right)+\frac{1}{2}x\sqrt{x^2+4}+C$$



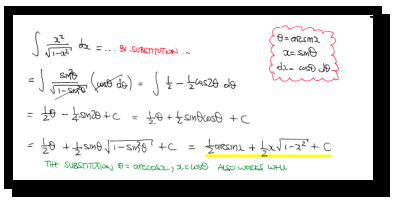
537. $$\int \frac{1}{4x^{\frac{1}{2}}\left(1+x^{\frac{1}{4}}\right)}\,dx=x^{\frac{1}{4}}-\ln\left(1+x^{\frac{1}{4}}\right)+C$$



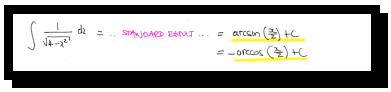
538. $$\int \frac{6x^2}{\sqrt{1-4x^6}}\,dx = \begin{bmatrix} \arcsin\left(2x^3\right)+C \\ \arccos\left(\sqrt{1-4x^6}\right)+C \end{bmatrix}$$



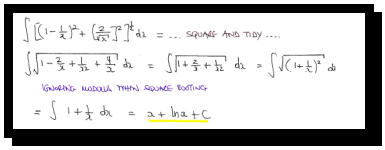
539. $$\int \frac{x^2}{\sqrt{1-x^2}}\,dx = \frac{1}{2}\arcsin x+\frac{1}{2}x\sqrt{1-x^2}+C$$



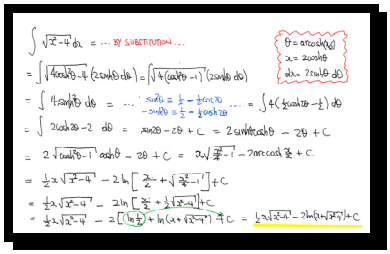
540. $$\int \frac{1}{\sqrt{4-x^2}}\,dx = \begin{bmatrix} \arcsin\left(\frac{1}{2}x\right)+C \\ -\arccos\left(\frac{1}{2}x\right)+C \end{bmatrix}$$



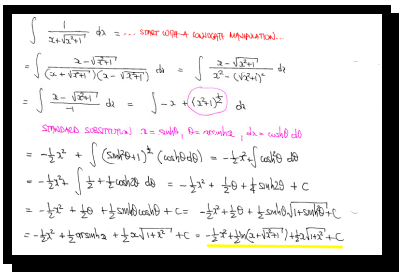
541. $$\int \left(1-\frac{1}{x}\right)^2+\left(\frac{2}{\sqrt{x}}\right)^2 dx = x+\ln x+C$$



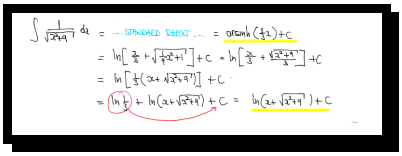
542. $$\int \sqrt{x^2-4}\, dx = \frac{1}{2}x\sqrt{x^2-4}-2\ln\left(x+\sqrt{x^2-4}\right)+C$$



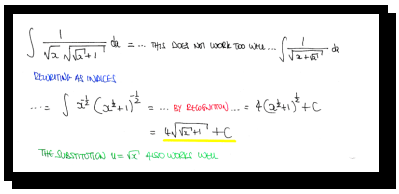
543. $$\int \frac{1}{x+\sqrt{x^2+1}}\, dx = -\frac{1}{2}x^2+\frac{1}{2}\ln\left(x+\sqrt{x^2+1}\right)+\frac{1}{2}x\sqrt{x^2+1}+C$$



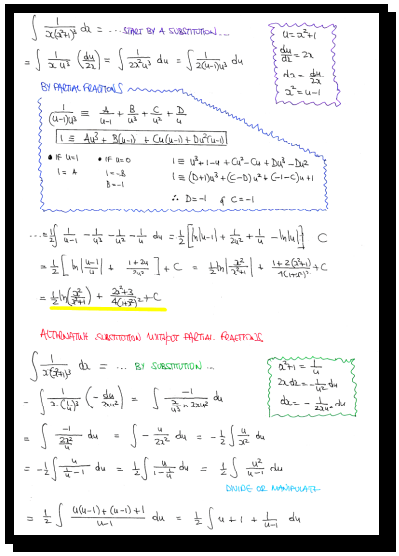
544. $$\int \frac{1}{\sqrt{x^2+9}}\,dx = \begin{bmatrix} \operatorname{arsinh}\left(\frac{1}{3}x\right)+C \\ \ln\left(x+\sqrt{x^2+9}\right)+C \end{bmatrix}$$

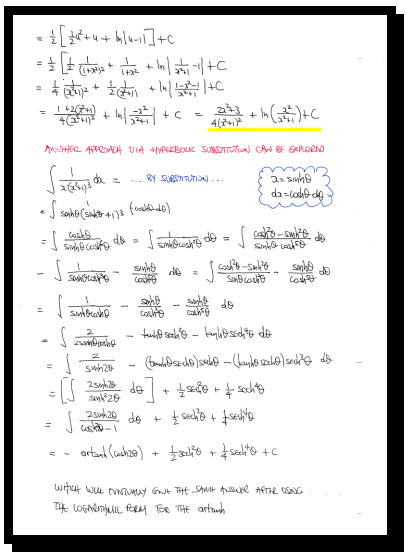


545. $$\int \frac{1}{\sqrt{x}\sqrt{1+\sqrt{x}}}\,dx = 4\sqrt{1+\sqrt{x}}+C$$

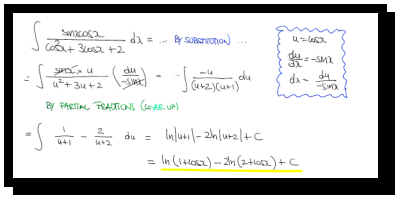


546. $$\int \frac{1}{x\left(1+x^2\right)^3}\,dx = \frac{3+2x^2}{4\left(1+x^2\right)^2}\frac{1}{2}\ln\left(\frac{x^2}{1+x^2}\right)+C$$

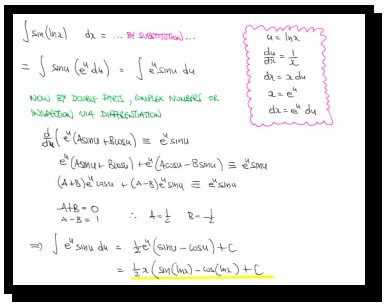




547. $\displaystyle\int \frac{\sin x\cos x}{\cos^2 x+3\cos x+2}\,dx=\ln\left(1+\cos x\right)-2\ln\left(2+\cos x\right)+C$



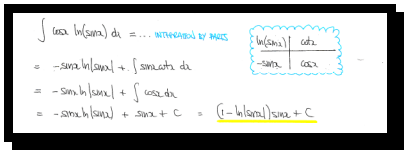
548. $\displaystyle\int \sin\left(\ln x\right)\,dx=\frac{1}{2}x\left[\sin\left(\ln x\right)-\cos\left(\ln x\right)\right]+C$



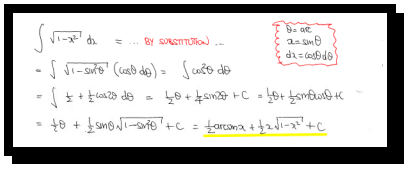
549. $\displaystyle\int -\sinh\left(\frac{1}{2}x\right)\,dx=-2\cosh\left(\frac{1}{2}x\right)+C$



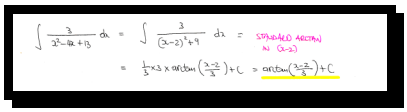
550. $\displaystyle\int \left(\cos x\right)\left[\ln\left(\sin x\right)\right]\,dx=\left[1-\ln\left|\sin x\right|\right]\sin x+C$



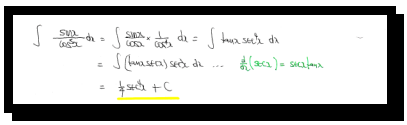
551. $\displaystyle\int \sqrt{1-x^2}\,dx = \frac{1}{2}\arcsin x + \frac{1}{2}x\sqrt{1-x^2} + C$



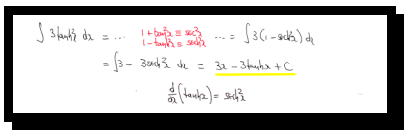
552. $\displaystyle\int \frac{3}{x^2-4x+13}\,dx = \arctan\left(\frac{x-2}{3}\right) + C$



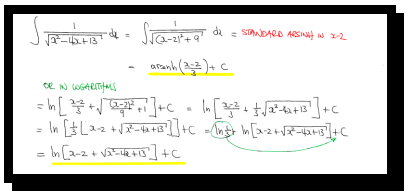
553. $\displaystyle\int \frac{\sin x}{\cos^5 x}\,dx = \frac{1}{4}\sec^4 x + C$



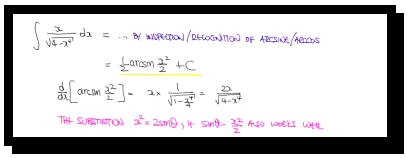
554. $\displaystyle\int 3\tanh^2 x\,dx = 3x - 3\tanh x + C$



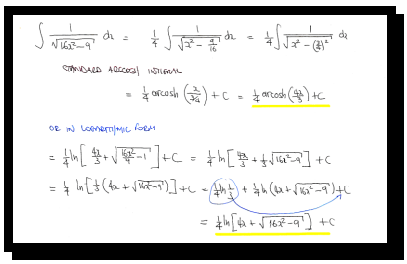
555. $$\int \frac{1}{\sqrt{x^2-4x+13}}\,dx = \begin{bmatrix} \operatorname{arsinh}\left(\frac{x-2}{3}\right)+C \\ \ln\left[x-2+\sqrt{x^2-4x+13}\right]+C \end{bmatrix}$$



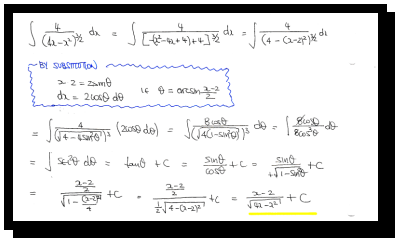
556. $$\int \frac{3}{\sqrt{4-x^4}}\,dx = \frac{1}{2}\arcsin\left(\frac{1}{2}x^2\right)+C$$



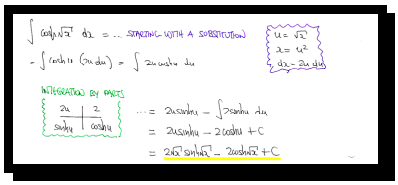
557. $$\int \frac{1}{\sqrt{16x^2-9}}\,dx = \begin{bmatrix} \frac{1}{4}\operatorname{arcosh}\left(\frac{4}{3}x\right)+C \\ \frac{1}{4}\ln\left[4x+\sqrt{16x^2-9}\right]+C \end{bmatrix}$$



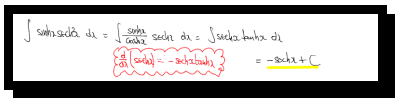
558. $$\int \frac{4}{\left(4x-x^2\right)^{\frac{3}{2}}}\,dx=\frac{x-2}{\sqrt{4x-x^2}}+C$$



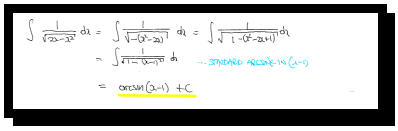
559. $$\int \cosh\sqrt{x}\;dx=2\sqrt{x}\,\sinh\sqrt{x}-2\cosh\sqrt{x}+C$$



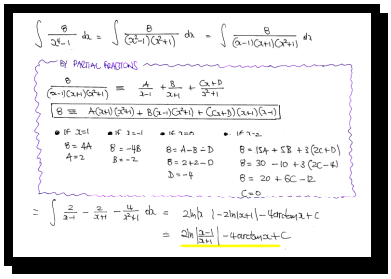
560. $$\int \sinh x\,\operatorname{sech}^2 x\;dx=-\operatorname{sech}x+C$$



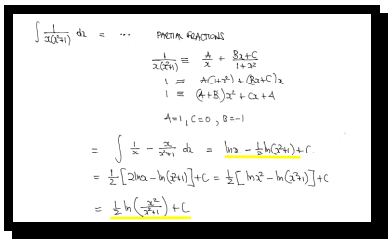
561. $$\int \frac{1}{\sqrt{2x-x^2}}\,dx=\arcsin\left(x-1\right)+C$$



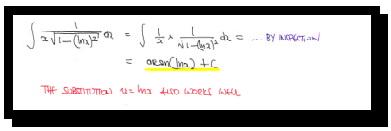
562. $$\int \frac{8}{x^4-1}\,dx = 2\ln\left|\frac{x-1}{x+1}\right| - 4\arctan x + C$$



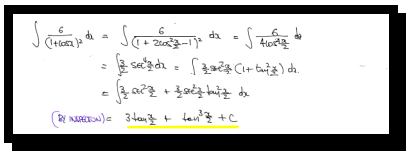
563. $$\int \frac{1}{x\left(x^2+1\right)}\,dx = \begin{cases} \ln|x| - \frac{1}{2}\ln\left(x^2+1\right) + C \\ \frac{1}{2}\ln\left(\frac{x^2}{x^2+1}\right) + C \end{cases}$$



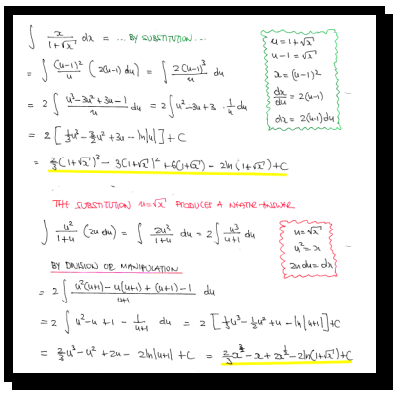
564. $$\int \frac{1}{x\sqrt{1-(\ln x)^2}}\,dx = \arcsin(\ln x) + C$$



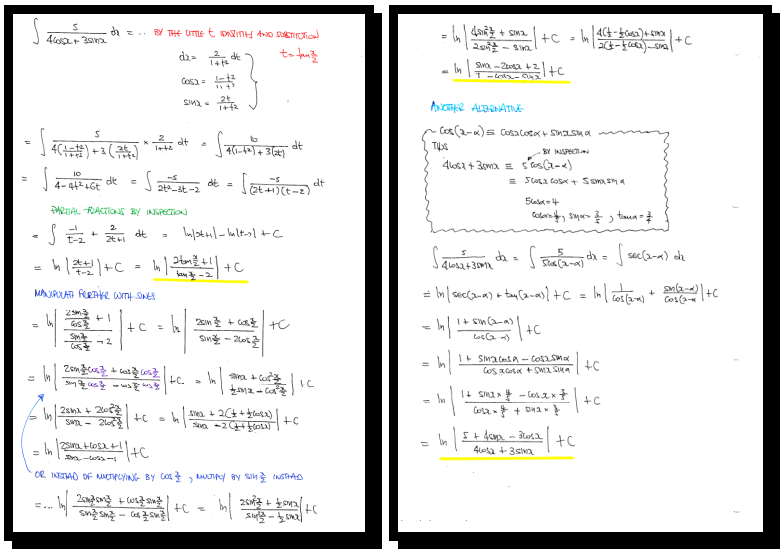
565. $\displaystyle\int \frac{6}{(1+\cos x)^2}\,dx = 3\tan\left(\frac{1}{2}x\right)+\tan^3\left(\frac{1}{2}x\right)+C$



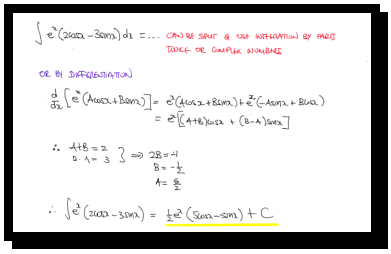
566. $\displaystyle\int \frac{x}{1+\sqrt{x}}\,dx = \frac{2}{3}x^{\frac{3}{2}}-x+2x^{\frac{1}{2}}-2\ln\left(1+\sqrt{x}\right)+C$



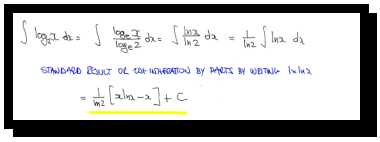
567. $$\int \frac{15}{4\cos x+3\sin x}\,dx=\begin{cases}\ln\left|\dfrac{2\tan\left(\frac{1}{2}x\right)+1}{\tan\left(\frac{1}{2}x\right)-2}\right|+C\\ \ln\left|\dfrac{2\sin x+\cos x+1}{\sin x-\cos x-1}\right|+C\\ \ln\left|\dfrac{\sin x-2\cos x+2}{1-\cos x-\sin x}\right|+C\\ \ln\left|\dfrac{5+4\sin x-3\cos x}{4\cos x+3\sin x}\right|+C\end{cases}$$



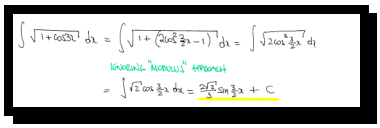
568. $$\int \mathrm{e}^x\left(2\cos x-3\sin x\right)dx=\frac{1}{2}\mathrm{e}^x\left(5\cos x-\sin x\right)+C$$



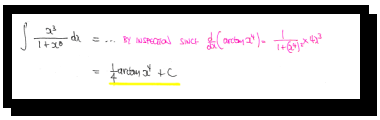
569. $\displaystyle\int \log_2 x \, dx = \frac{1}{\ln 2}\left(x\ln x - x\right) + C$



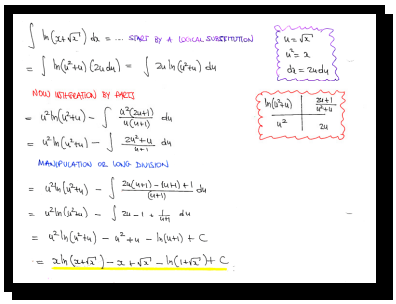
570. $\displaystyle\int \sqrt{1+\cos 3x} \, dx = \frac{2\sqrt{2}}{3}\sin\left(\frac{3}{2}x\right) + C$



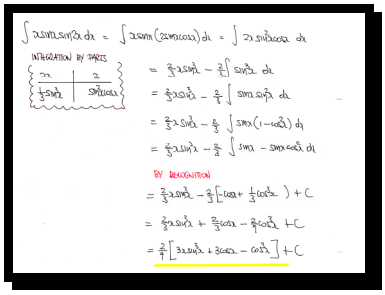
571. $\displaystyle\int \frac{x^3}{1+x^8} \, dx = \frac{1}{4}\arctan\left(x^4\right) + C$



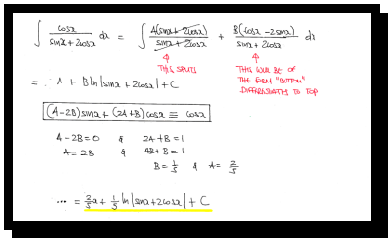
572. $\displaystyle\int \ln\left(x+\sqrt{x}\right) dx = x\ln\left(x+\sqrt{x}\right) - \ln\left(1+\sqrt{x}\right) - x + \sqrt{x} + C$



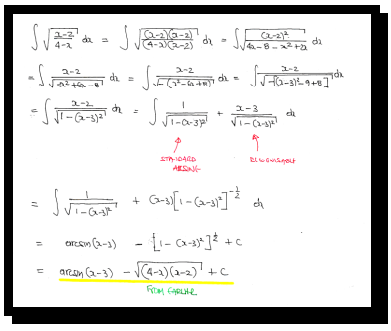
573. $\displaystyle\int x\sin x\sin 2x\,dx=\frac{2}{9}\left(3x\sin^3 x+3\cos x-\cos^3 x\right)+C$



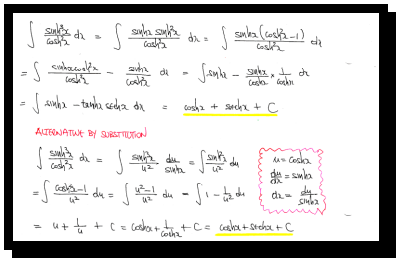
574. $\displaystyle\int \frac{\cos x}{\sin x+2\cos x}\,dx=\frac{2}{5}x+\frac{1}{5}\ln\left|\sin x+2\cos x\right|+C$



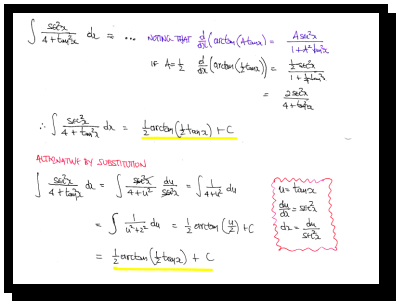
575. $\displaystyle\int \sqrt{\frac{x-2}{4-x}}\,dx=\arcsin(x-3)-\sqrt{(4-x)(x-2)}+C$



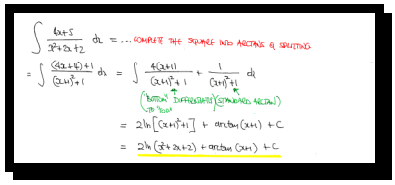
576. $\displaystyle\int \frac{\sinh^3 x}{\cosh^2 x}\,dx = \cosh x + \operatorname{sech} x + C$



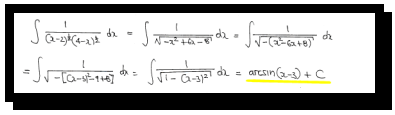
577. $\displaystyle\int \frac{\sec^2 x}{4+\tan^2 x}\,dx = \frac{1}{2}\arctan\left(\frac{1}{2}\tan x\right) + C$



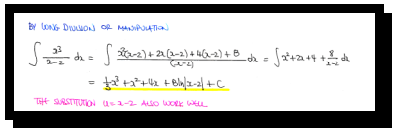
578. $\displaystyle\int \frac{4x+5}{x^2+2x+2}\,dx = 2\ln\left(x^2+2x+2\right) + \arctan\left(x+1\right) + C$



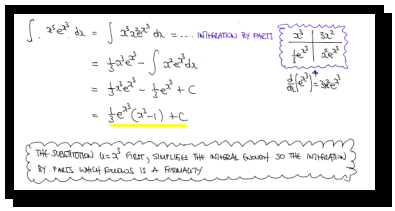
579. $$\int \frac{1}{(x-2)^{\frac{1}{2}}(4-x)^{\frac{1}{2}}}\,dx = \arcsin(x-3)+C$$



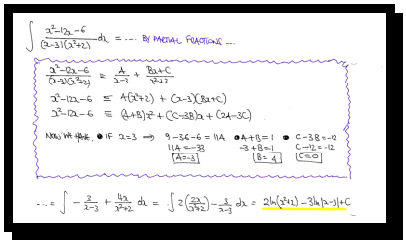
580. $$\int \frac{x^3}{x-2}\,dx = \frac{1}{2}x^3+x^2+4x+8\ln|x-2|+C$$



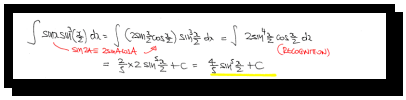
581. $$\int x^5 \mathrm{e}^{x^3}\,dx = \frac{1}{3}\mathrm{e}^{x^3}\left(x^3-1\right)+C$$



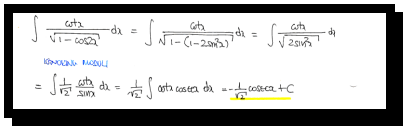
582. $$\int \frac{x^2-12x-6}{(x-3)\left(x^2+2\right)}\,dx = 2\ln\left(x^2+2\right)-3\ln|x-3|+C$$



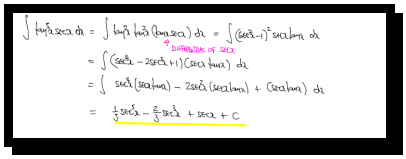
583. $\displaystyle\int \sin x \sin^3\left(\frac{1}{2}x\right) dx = \frac{4}{5}\sin^5\left(\frac{1}{2}x\right) + C$



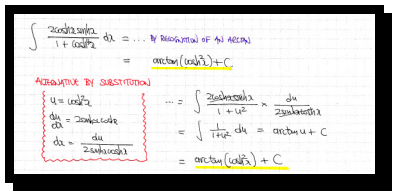
584. $\displaystyle\int \frac{\cot x}{\sqrt{1-\cos 2x}}\, dx = -\frac{1}{\sqrt{2}}\operatorname{cosec} x + C$



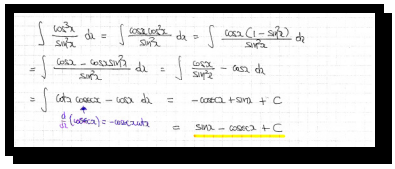
585. $\displaystyle\int \tan^5 x \sec x\, dx = \frac{1}{5}\sec^5 x - \frac{2}{3}\sec^3 x + \sec x + C$



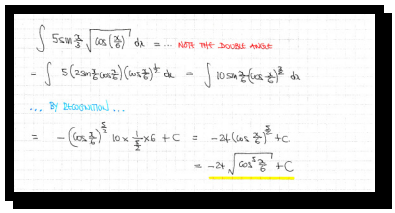
586. $\displaystyle\int \frac{2\cosh x \sinh x}{1+\cosh^4 x}\, dx = \arctan\left(\cosh^2 x\right) + C$



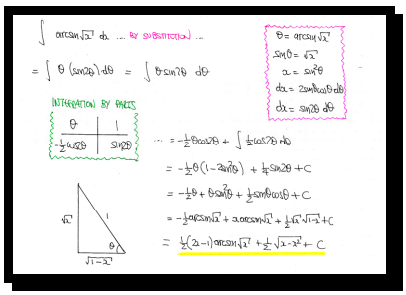
587. $\displaystyle\int \frac{\cos^3 x}{\sin^2 x}\,dx = \sin x - \operatorname{cosec} x + C$



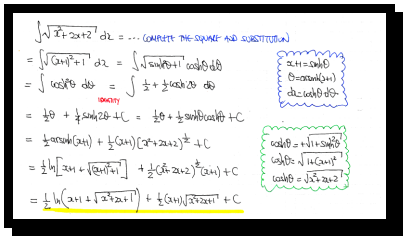
588. $\displaystyle\int 5\sin\left(\frac{1}{3}x\right)\sqrt{\cos\left(\frac{1}{6}x\right)}\,dx = -24\sqrt{\cos^5\left(\frac{1}{6}x\right)} + C$



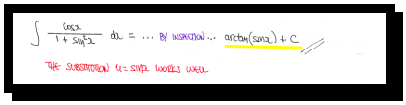
589. $\displaystyle\int \arcsin\sqrt{x}\,dx = \frac{1}{2}(2x-1)\arcsin\sqrt{x} + \frac{1}{2}\sqrt{x-x^2} + C$



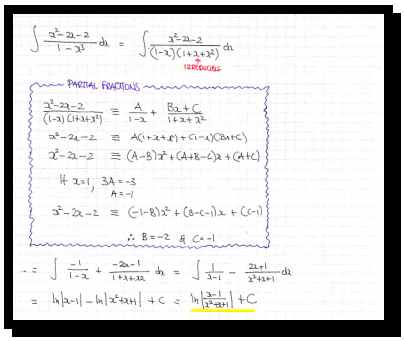
590. $\displaystyle\int \sqrt{x^2+2x+2}\,dx=\frac{1}{2}\ln\left[x+1+\sqrt{x^2+2x+2}\right]+\frac{1}{2}(x+1)\sqrt{x^2+2x+2}+C$



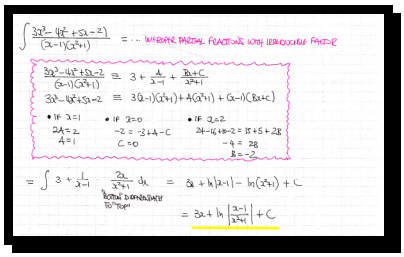
591. $\displaystyle\int \frac{\cos x}{1+\sin^2 x}\,dx=\arctan(\sin x)+C$



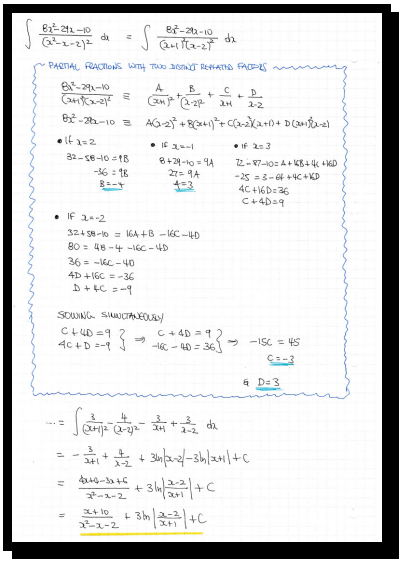
592. $\displaystyle\int \frac{x^2-2x-2}{1-x^3}\,dx=\ln\left|\frac{x-1}{x^2+x+1}\right|+C$



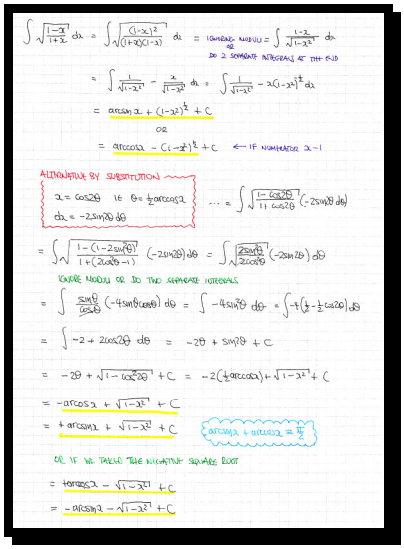
593. $$\int \frac{3x^3-4x^2+5x-2}{(x-1)\left(x^2+1\right)}\,dx=3x+\ln\left|\frac{x-1}{x^2+1}\right|+C$$



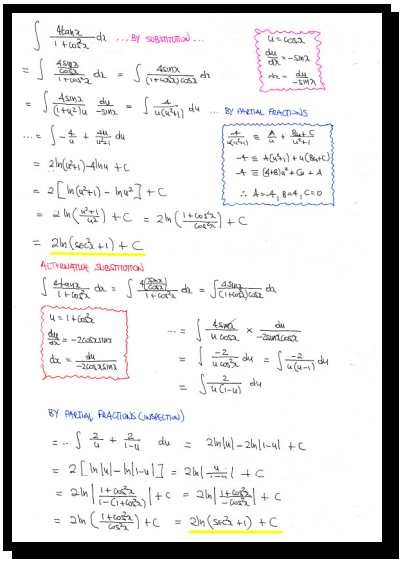
594. $$\int \frac{8x^2-29x-10}{\left(x^2-x-2\right)^2}\,dx=\frac{x+10}{x^2-x-2}+3\ln\left|\frac{x-2}{x+1}\right|+C$$



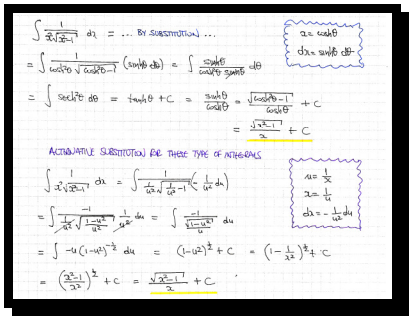
595. $$\int \sqrt{\frac{1-x}{1+x}}\,dx = \begin{cases} \arcsin x+\sqrt{1-x^2}+C \\ \arccos x-\sqrt{1-x^2}+C \\ -\arcsin x-\sqrt{1-x^2}+C \\ -\arccos x+\sqrt{1-x^2}+C \end{cases}$$



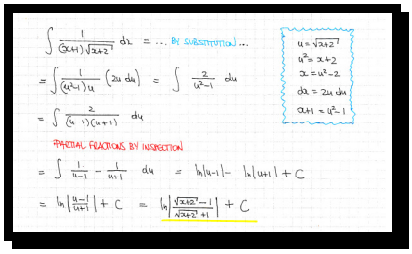
596. $$\int \frac{4\tan x}{1+\cos^2 x}\,dx = 2\ln\left(1+\sec^2 x\right)+C$$



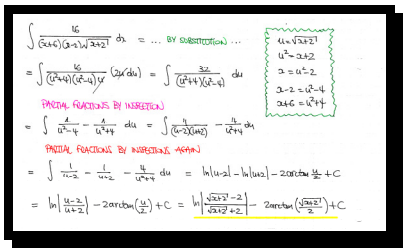
597. $$\int \frac{1}{x^2\sqrt{x^2-1}}\,dx=\frac{\sqrt{x^2-1}}{x}+C$$



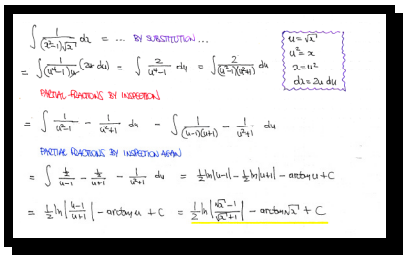
598. $$\int \frac{1}{(x+1)\sqrt{x+2}}\,dx=\ln\left|\frac{\sqrt{x+2}-1}{\sqrt{x+2}+1}\right|+C$$



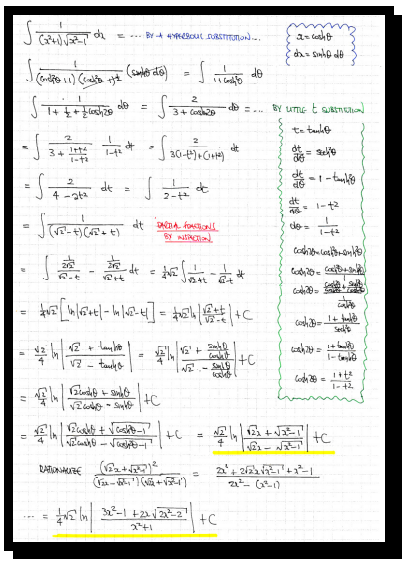
599. $$\int \frac{1}{(x+6)(x-2)\sqrt{x+2}}\,dx=\ln\left|\frac{\sqrt{x+2}-2}{\sqrt{x+2}+2}\right|-2\arctan\left(\frac{\sqrt{x+2}}{2}\right)+C$$

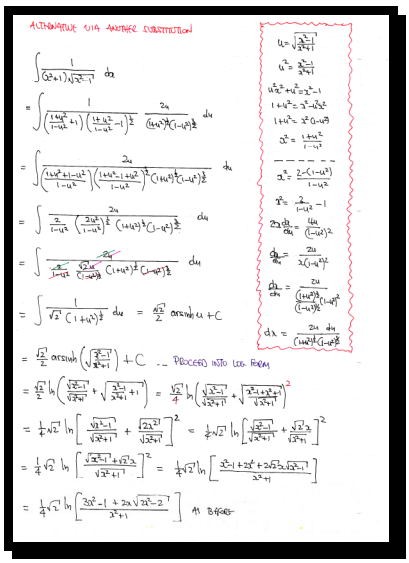


600. $$\int \frac{1}{\left(x^2-1\right)\sqrt{x}}\,dx=\ln\left|\frac{\sqrt{x}-1}{\sqrt{x}+1}\right|-\arctan\sqrt{x}+C$$

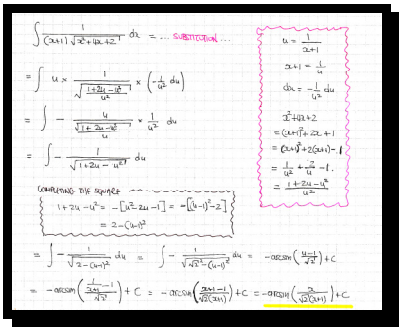


601. $$\int \frac{1}{\left(x^2+1\right)\sqrt{x^2-1}}\,dx=\begin{cases}\dfrac{\sqrt{2}}{4}\ln\left|\dfrac{\sqrt{2}x+\sqrt{x^2-1}}{\sqrt{2}x-\sqrt{x^2-1}}\right|+C\\[2ex]\dfrac{\sqrt{2}}{4}\ln\left|\dfrac{3x^2-1+2x\sqrt{2x^2-2}}{x^2+1}\right|+C\end{cases}$$

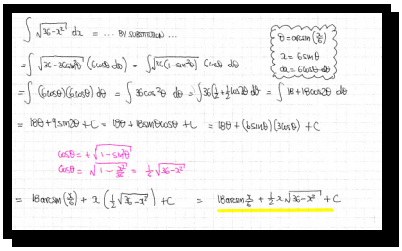




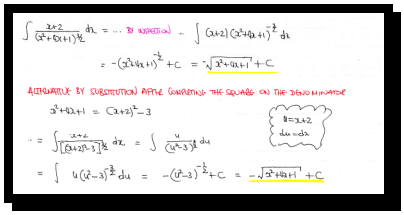
602. $$\int \frac{1}{(x+1)\sqrt{x^2+4x+2}}\,dx=-\arcsin\left[\frac{x}{\left(x+1\sqrt{2}\right)}\right]+C$$



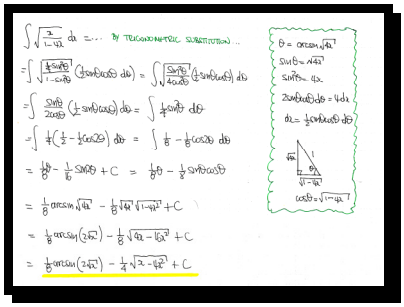
603. $$\int \sqrt{36-x^2}\,dx=18\arcsin\left(\frac{1}{6}x\right)+\frac{1}{2}x\sqrt{36-x^2}+C$$



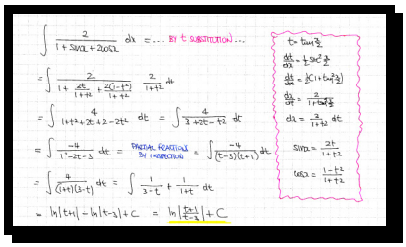
604. $$\int \frac{x+2}{\left(x^2+4x+1\right)^{\frac{3}{2}}}\,dx=-\sqrt{x^2+4x+1}+C$$



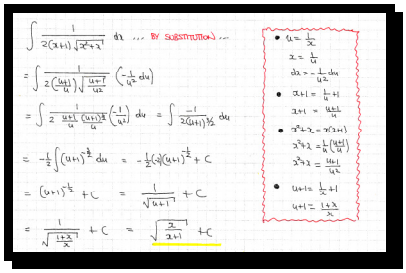
605. $\displaystyle\int \sqrt{\frac{x}{1-4x}}\,dx=\frac{1}{8}\arcsin\left(2\sqrt{x}\right)-\frac{1}{4}\sqrt{x-4x^2}+C$



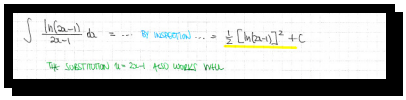
606. $\displaystyle\int \frac{2}{1+\sin x+2\cos x}\,dx=\ln\left[\frac{\tan\left(\frac{1}{2}x\right)+1}{\tan\left(\frac{1}{2}x\right)-3}\right]+C$



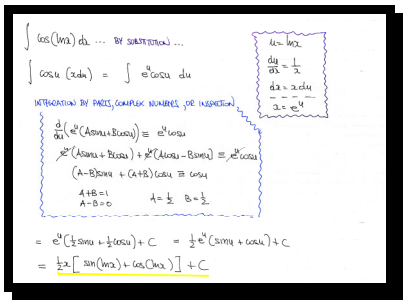
607. $\displaystyle\int \frac{1}{2(x+1)\sqrt{x^2+x}}\,dx=\sqrt{\frac{x}{x+1}}+C$



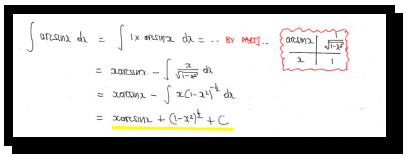
608. $\displaystyle\int \frac{\ln(2x-1)}{2x-1}\,dx=\frac{1}{2}\Big[\ln(2x-1)\Big]^2+C$



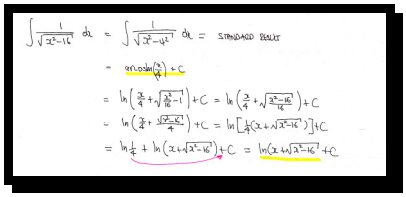
609. $\displaystyle\int \cos(\ln x)\,dx=\frac{1}{2}x\Big[\sin(\ln x)+\cos(\ln x)\Big]+C$



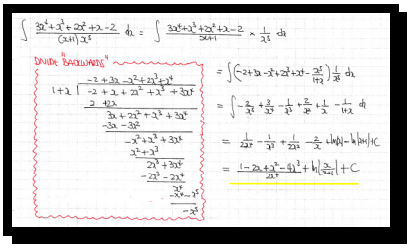
610. $\displaystyle\int \arcsin x\,dx=x\arcsin x+\sqrt{1-x^2}+C$



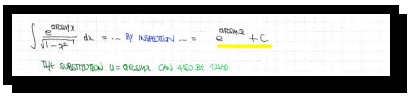
611. $\displaystyle\int \frac{1}{\sqrt{x^2-16}}\,dx=\begin{cases}\operatorname{arcosh}\left(\frac{1}{4}x\right)+C\\ \ln\left(x+\sqrt{x^2-16}\right)+C\end{cases}$



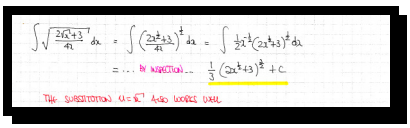
612. $$\int \frac{3x^4+x^3+2x^2+x-2}{(x+1)x^5}\,dx=\frac{1-2x+x^2-4x^3}{2x^4}+\ln\left|\frac{x}{x+1}\right|+C$$



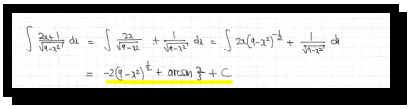
613. $$\int \frac{e^{\arcsin x}}{\sqrt{1-x^2}}\,dx=e^{\arcsin x}+C$$



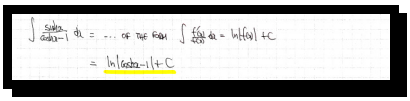
614. $$\int \sqrt{\frac{3+2\sqrt{x}}{4x}}\,dx=\frac{1}{3}\left(3+2\sqrt{x}\right)^{\frac{3}{2}}+C$$



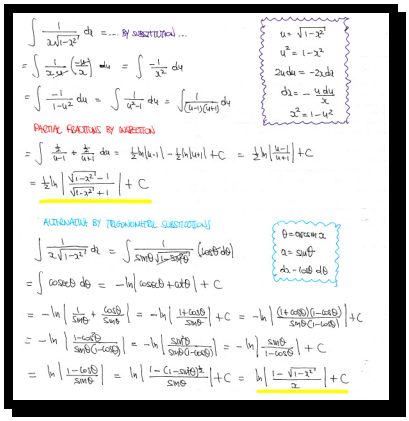
615. $$\int \frac{2x+1}{\sqrt{9-x^2}}\,dx=\arcsin\left(\frac{1}{3}x\right)-2\left(9-x^2\right)^{\frac{1}{2}}+C$$



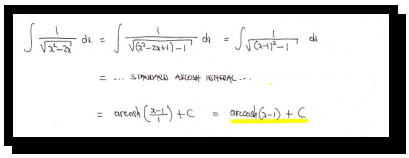
616. $$\int \frac{\sinh x}{\cosh x - 1}\,dx = \ln\left(\cosh x - 1\right) + C$$



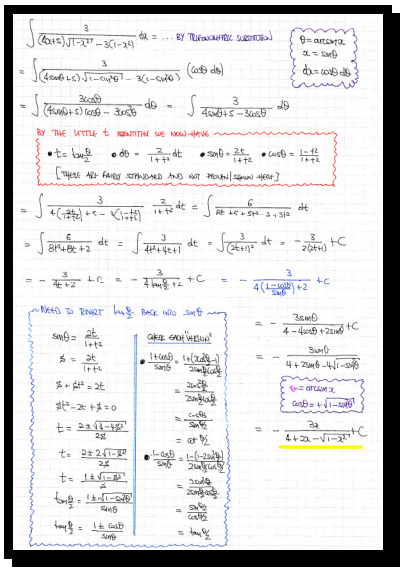
617. $$\int \frac{1}{x\sqrt{1-x^2}}\,dx = \begin{cases} \dfrac{1}{2}\ln\left|\dfrac{\sqrt{1-x^2}-1}{\sqrt{1-x^2}+1}\right| + C \\ \ln\left|\dfrac{1-\sqrt{1-x^2}}{x}\right| + C \end{cases}$$

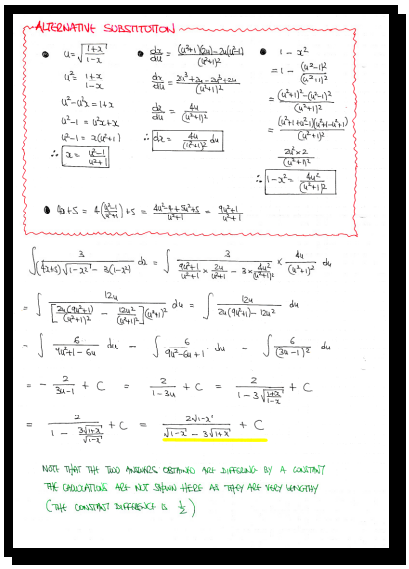


618. $$\int \frac{1}{\sqrt{x^2-2x}}\,dx = \operatorname{arcosh}\left(x-1\right) + C$$

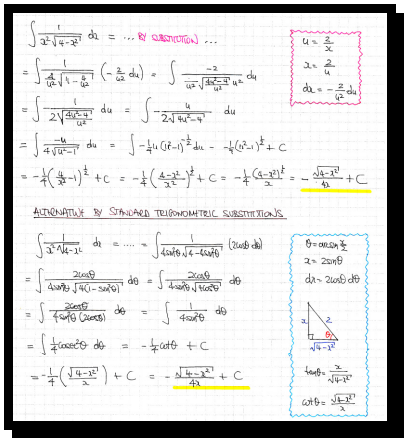


619. $$\int \frac{3}{(4x+5)\sqrt{1-x^2}-3\left(1-x^2\right)}\,dx=\begin{cases}\dfrac{-3x}{4+2x-\sqrt{1-x^2}}+C\\[2ex]\dfrac{2\sqrt{1-x}}{\sqrt{1-x}-3\sqrt{1+x}}+C\end{cases}$$

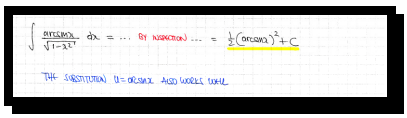




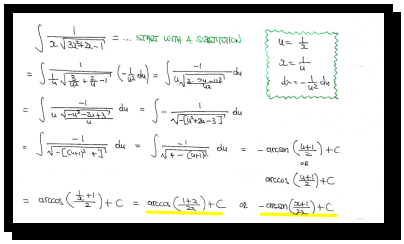
620. $$\int \frac{1}{x^2\sqrt{4-x^2}}\,dx=-\frac{\sqrt{4-x^2}}{4x}+C$$



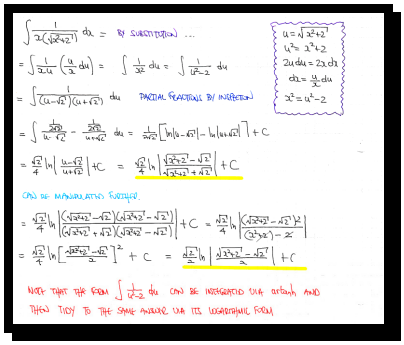
621. $$\int \frac{\arcsin x}{\sqrt{1-x^2}}\,dx=\frac{1}{2}\left(\arcsin x\right)^2+C$$



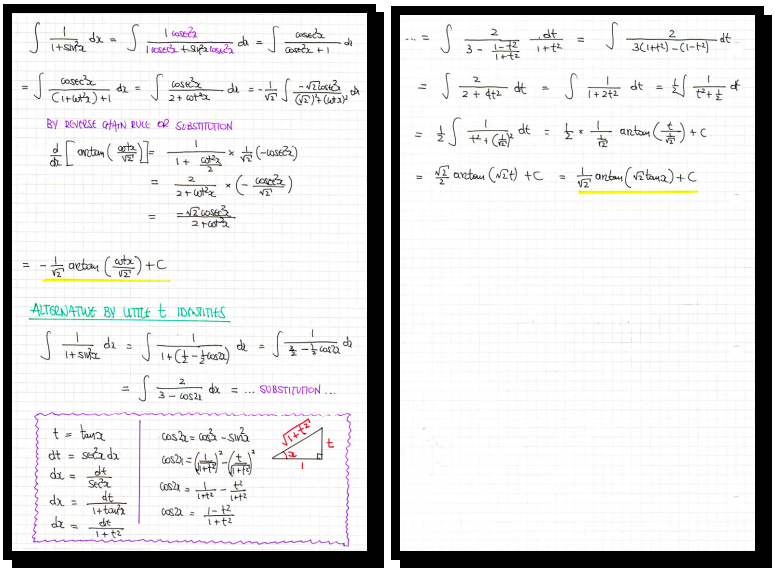
622. $$\int \frac{3}{x\sqrt{3x^2+2x-1}}\,dx=\begin{cases}\arccos\left(\dfrac{1+x}{2x}\right)+C\\ -\arcsin\left(\dfrac{1+x}{2x}\right)+C\end{cases}$$



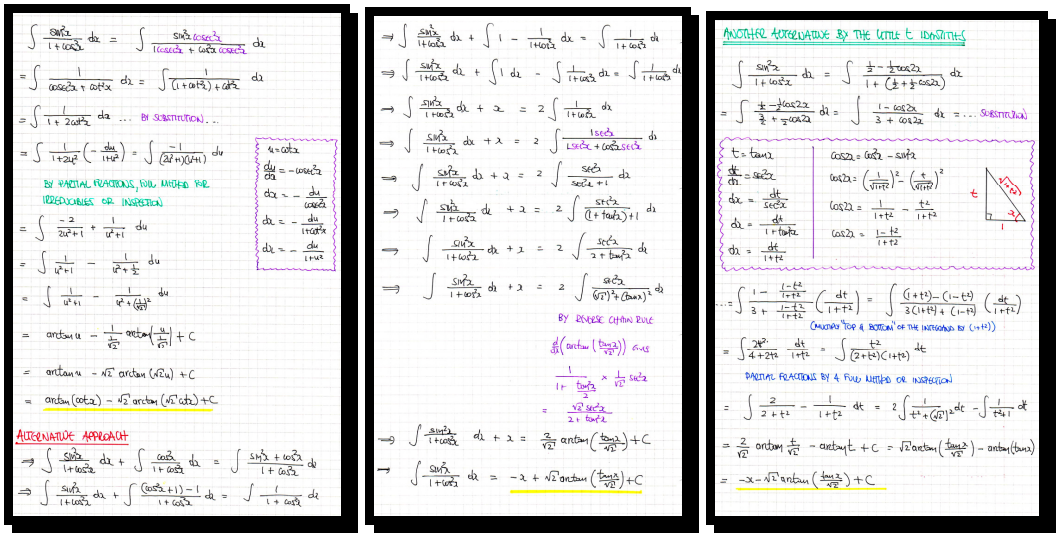
623. $$\int \frac{3}{x\sqrt{x^2+2}}\,dx=\begin{cases}\dfrac{\sqrt{2}}{4}\ln\left|\dfrac{\sqrt{x^2+2}-\sqrt{2}}{\sqrt{x^2+2}+\sqrt{2}}\right|+C\\ \dfrac{\sqrt{2}}{2}\ln\left|\dfrac{\sqrt{x^2+2}-\sqrt{2}}{x}\right|+C\end{cases}$$



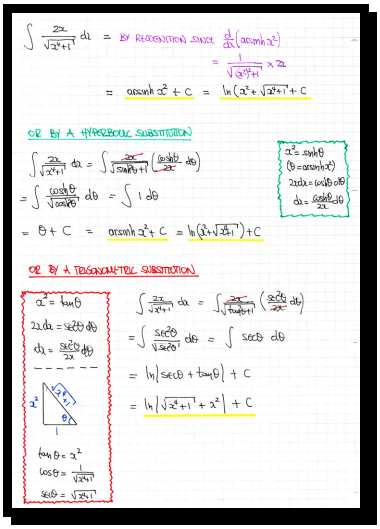
624. $$\int \frac{1}{1+\sin^2 x}\,dx = \begin{bmatrix} -\dfrac{1}{\sqrt{2}}\arctan\left(\dfrac{\cot x}{\sqrt{2}}\right) + C \\ \dfrac{1}{\sqrt{2}}\arctan\left(\sqrt{2}\,\tan x\right) + C \end{bmatrix}$$



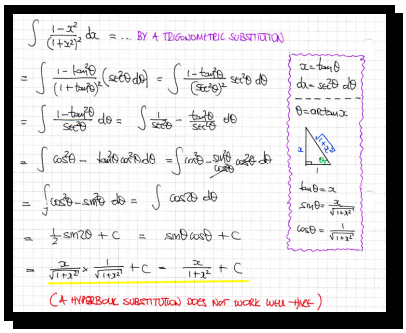
625. $$\int \frac{\sin^2 x}{1+\cos^2 x}\,dx = \begin{bmatrix} -x-\sqrt{2}\,\arctan\left(\dfrac{\tan x}{\sqrt{2}}\right) + C \\ \arctan\left(\cot x\right)-\sqrt{2}\,\arctan\left(\sqrt{2}\,\cot x\right) + C \end{bmatrix}$$



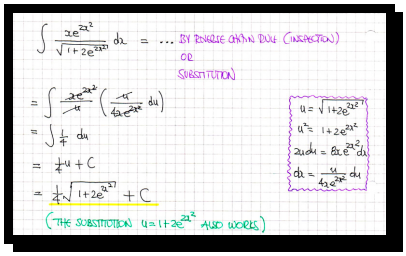
626. $$\int \frac{2x}{\sqrt{x^4+1}}\,dx = \begin{bmatrix} \ln\left[x^2+\sqrt{x^4+1}\right] + C \\ \operatorname{arsinh}\left(x^2\right) + C \end{bmatrix}$$



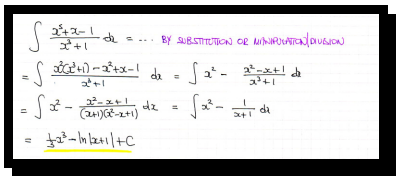
627. $$\int \frac{1-x^2}{\left(1+x^2\right)^2}\,dx = \frac{x}{1+x^2} + C$$



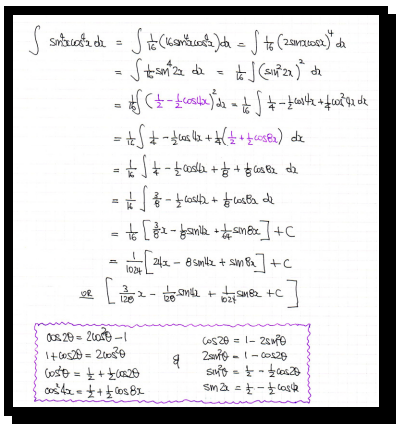
628. $$\int \frac{x\mathrm{e}^{2x^2}}{\sqrt{1+2\mathrm{e}^{2x^2}}}\,dx=\frac{1}{4}\sqrt{1+2\mathrm{e}^{2x^2}}\ +\ C$$



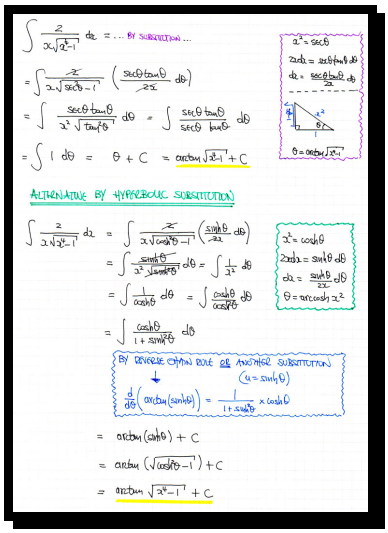
629. $$\int \frac{x^5+x-1}{x^3+1}\,dx=\frac{1}{3}x^3-\ln\left|x+1\right|\ +\ C$$



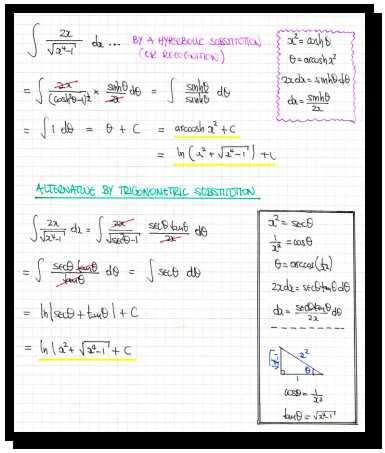
630. $$\int \sin^4 x\cos^4 x\ dx=\frac{3}{128}x-\frac{1}{128}\sin 4x+\frac{1}{1024}\sin 8x\ +\ C$$



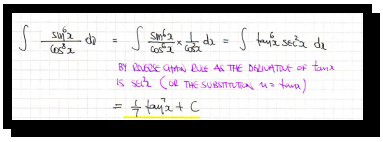
631. $$\int \frac{2}{x\sqrt{x^4-1}}\,dx = \arctan\left(\sqrt{x^4-1}\right) + C$$



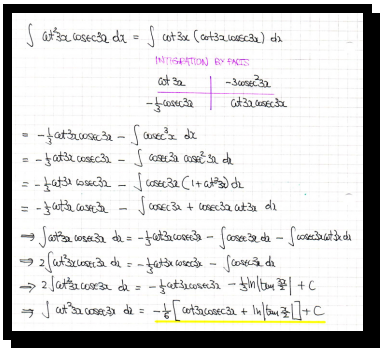
632. $$\int \frac{2x}{\sqrt{x^4-1}}\,dx = \begin{bmatrix} \ln\left[x^2+\sqrt{x^4-1}\right] + C \\ \operatorname{arcosh}\left(x^2\right) + C \end{bmatrix}$$



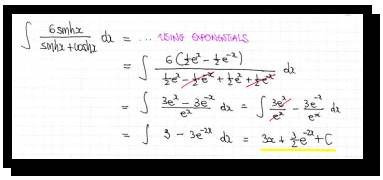
633. $\displaystyle\int \frac{\sin^6 x}{\cos^8 x}\,dx = \frac{1}{7}\tan^7 x \ + \ \mathrm{C}$



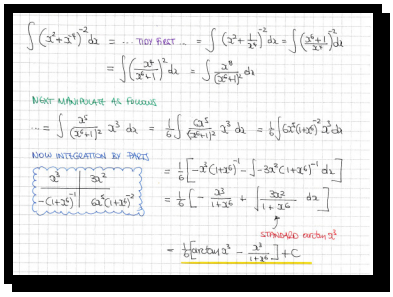
634. $\displaystyle\int \cot^2 3x\ \operatorname{cosec} 3x\ dx = -\frac{1}{6}\left[\cot 3x \operatorname{cosec} 3x + \ln\left|\tan\left(\frac{3}{2}x\right)\right|\right] \ + \ C$



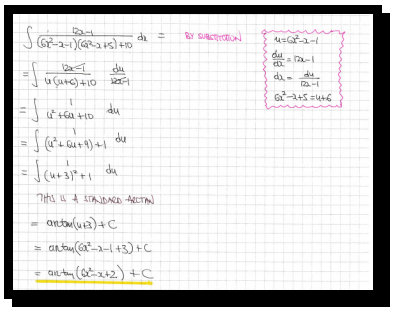
635. $\displaystyle\int \frac{6\sinh x}{\sinh x + \cosh x}\,dx = 3x + \frac{3}{2}\mathrm{e}^{-2x} \ + \ C$



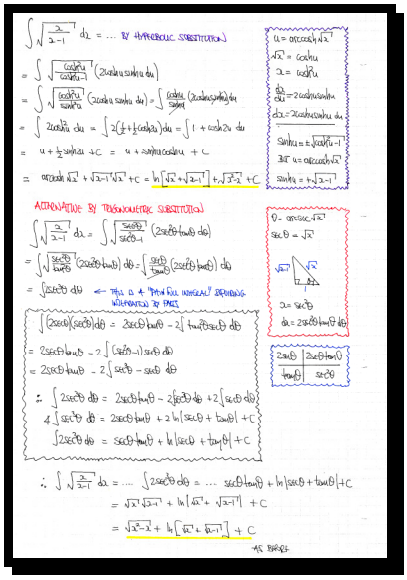
636. $\displaystyle\int \left(x^2+x^{-4}\right)^{-2}\,dx=\frac{1}{6}\left[\arctan\left(x^3\right)-\frac{x^3}{1+x^6}\right]+C$



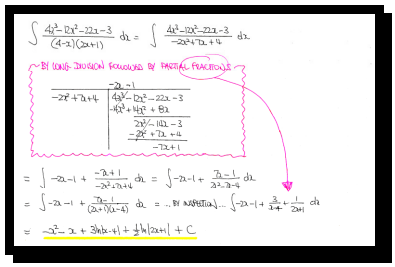
637. $\displaystyle\int \frac{12x-1}{\left(6x^2-x-1\right)\left(6x^2-x+5\right)+10}\,dx=\arctan\left(6x^2-x+2\right)+C$



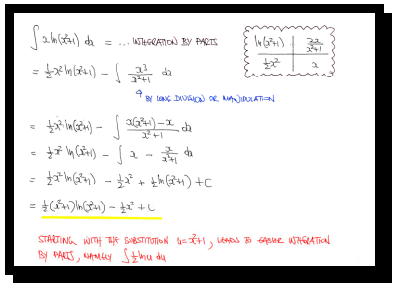
638. $\displaystyle\int \sqrt{\frac{x}{x-1}}\,dx=\frac{1}{6}\left[\arctan\left(x^3\right)-\frac{x^3}{1+x^6}\right]+C$



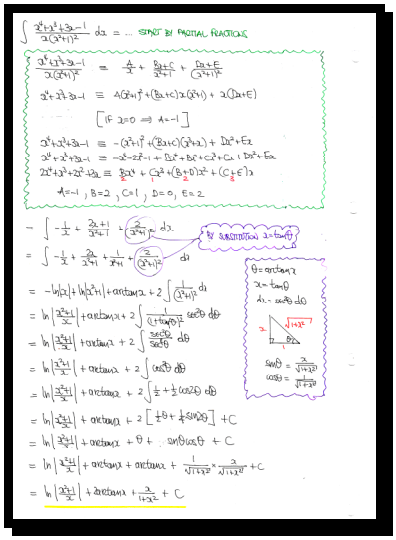
639. $\displaystyle\int \frac{4x^3-12x^2-22x-3}{(4-x)(x+1)}\,dx=-x^2-x+3\ln|x-4|+\frac{1}{2}\ln|2x+1|+C$



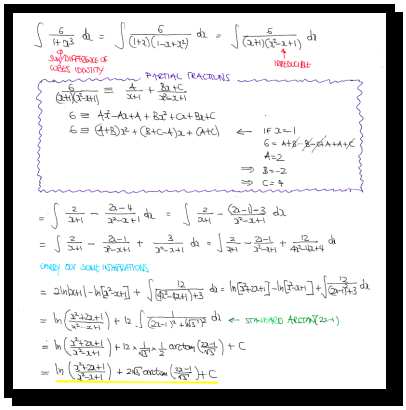
640. $\displaystyle\int x\ln\left(x^2+1\right)dx=\frac{1}{2}\left(x^2+1\right)\ln\left(x^2+1\right)-\frac{1}{2}x^2+C$



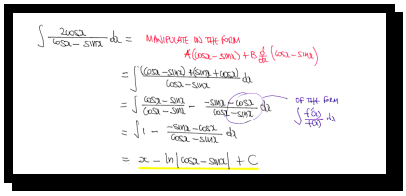
641. $$\int \frac{x^4+x^3+3x-1}{x\left(x^2+1\right)^2}\,dx=\ln\left|\frac{x^2+1}{x}\right|+2\arctan x+\frac{x}{x^2+1}\ +\ C$$



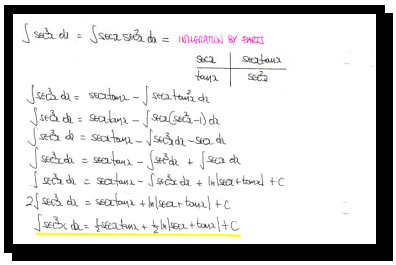
642. $$\int \frac{6}{1+x^3}\,dx=\ln\left[\frac{x^2+2x+1}{x^2-x+1}\right]+2\sqrt{3}\arctan\left(\frac{2x-1}{\sqrt{3}}\right)\ +\ C$$



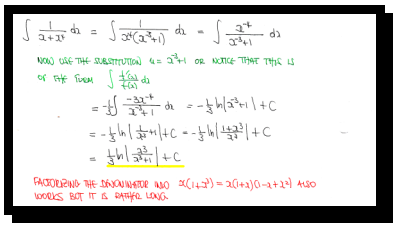
643. $\displaystyle\int \frac{2\cos x}{\cos x-\sin x}\,dx = x-\ln\left|\cos x-\sin x\right| \ + \ C$



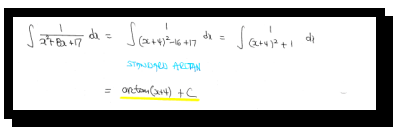
644. $\displaystyle\int \sec^3 x\,dx = \frac{1}{2}\sec x\tan x+\frac{1}{2}\ln\left|\sec x+\tan x\right| \ + \ C$



645. $\displaystyle\int \frac{1}{x+x^4}\,dx = \frac{1}{3}\ln\left|\frac{x^3}{x^3+1}\right| \ + \ C$

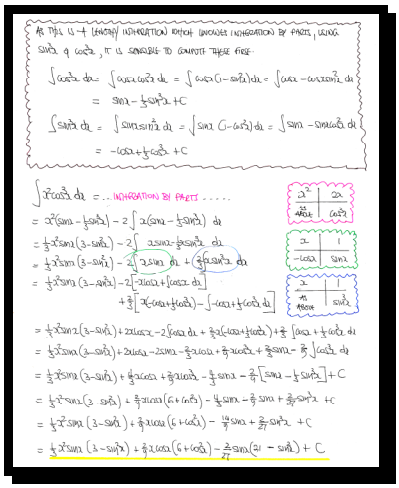


646. $\displaystyle\int \frac{1}{x^2+8x+17}\,dx = \arctan\left(x+4\right) \ + \ C$

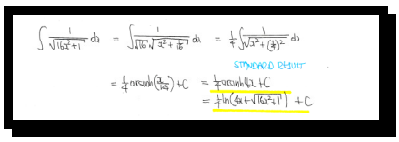


647. $\displaystyle\int x^2\cos^3 x\,dx=\ldots$

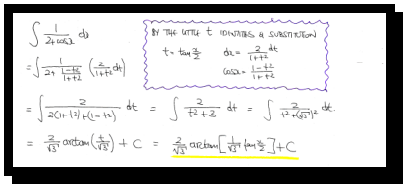
$$\ldots=\frac{1}{3}x^2\left(3-\sin^2 x\right)\sin x+\frac{2}{9}x\left(6+\cos^2 x\right)\cos x-\frac{2}{27}\left(21-\sin^2 x\right)\sin x\ +\ C$$



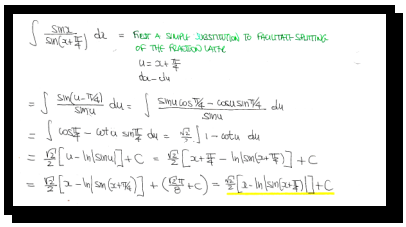
648. $\displaystyle\int\frac{1}{\sqrt{16x^2+1}}\,dx=\begin{bmatrix}\dfrac{1}{4}\ln\left[4x+\sqrt{16x^2+1}\right]\ +\ C\\[2ex]\dfrac{1}{4}\operatorname{arsinh}(4x)\ +\ C\end{bmatrix}$



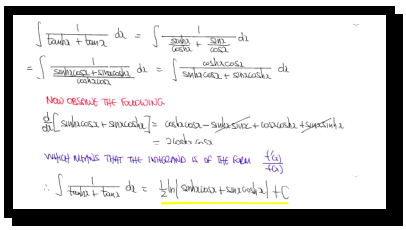
649. $\displaystyle\int\frac{1}{2+\cos x}\,dx=\frac{2}{\sqrt{3}}\arctan\left[\frac{1}{\sqrt{3}}\tan\left(\frac{1}{2}x\right)\right]\ +\ C$



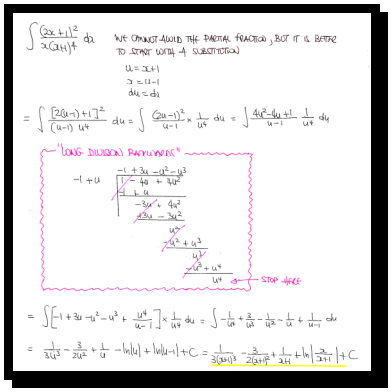
650. $$\int \frac{\sin x}{\sin\left(x+\frac{1}{4}\pi\right)}\,dx=\frac{\sqrt{2}}{2}\left[x-\ln\left|\sin\left(x+\frac{1}{4}\pi\right)\right|\right]+C$$



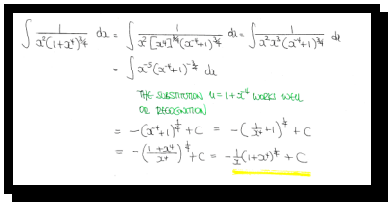
651. $$\int \frac{1}{\tanh x+\tan x}\,dx=\ln\left|\sinh x\cos x+\sin x\cosh x\right|+C$$



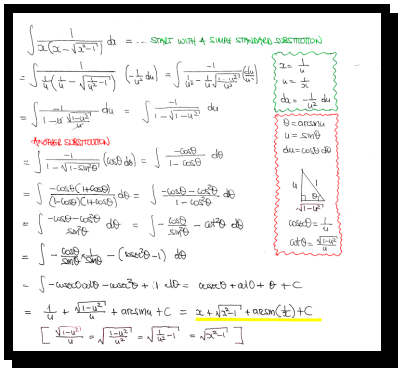
652. $$\int \frac{(2x+1)^2}{x(x+1)^4}\,dx=\frac{1}{3(x+1)^3}-\frac{3}{2(x+1)^2}+\frac{1}{x+1}+\ln\left|\frac{x}{x+1}\right|+C$$



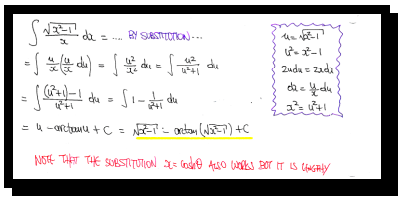
653. $$\int \frac{1}{x^2\left(1+x^4\right)^{\frac{3}{4}}}\,dx=-\frac{1}{x}\left(1+x^4\right)^{\frac{1}{4}}+C$$



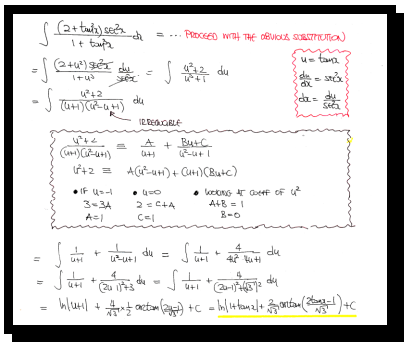
654. $$\int \frac{1}{x\left(x-\sqrt{x^2-1}\right)}\,dx=x+\sqrt{x^2-1}+\arcsin\left(\frac{1}{x}\right)+C$$



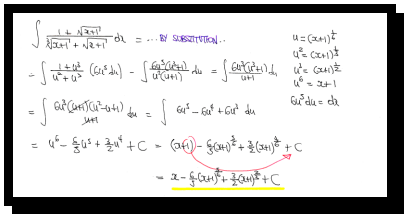
655. $$\int \frac{\sqrt{x^2-1}}{x}\,dx=\sqrt{x^2-1}-\arctan\left(\sqrt{x^2-1}\right)+C$$



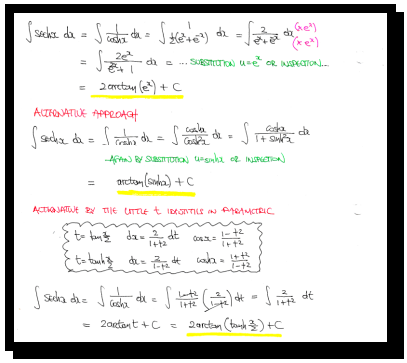
656. $$\int \frac{\left(2+\tan^2 x\right)\sec^2 x}{1+\tan^3 x}\,dx = \ln\left|1+\tan x\right| + \frac{2}{\sqrt{3}}\arctan\left(\frac{2\tan x - 1}{\sqrt{3}}\right) + C$$



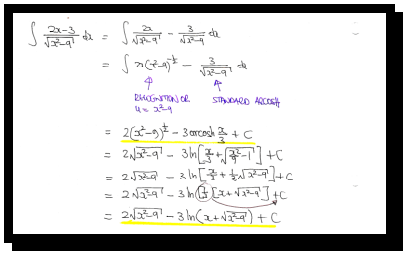
657. $$\int \frac{1+\sqrt{x+1}}{\sqrt[3]{x+1}+\sqrt{x+1}}\,dx = x - \frac{6}{5}(x+1)^{\frac{5}{6}} + \frac{3}{2}(x+1)^{\frac{2}{3}} + C$$



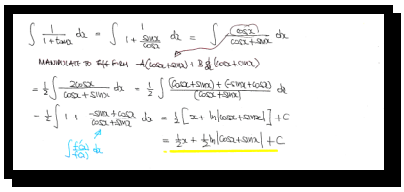
658. $$\int \operatorname{sech} x\,dx = \begin{cases} 2\arctan\left(\mathrm{e}^x\right) + C \\ \arctan\left(\sinh x\right) + C \\ 2\arctan\left(\tan\frac{1}{2}x\right) + C \end{cases}$$



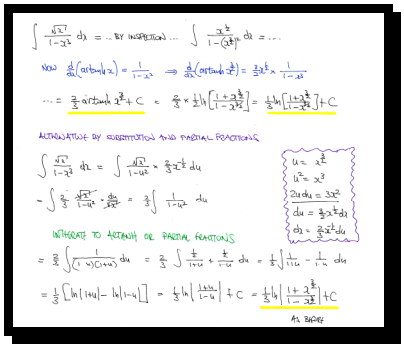
659. $$\int \frac{2x-3}{\sqrt{x^2-9}}\,dx = \begin{cases} 2\sqrt{x^2-9}-3\operatorname{arcosh}\left(\frac{1}{3}x\right)+C \\ 2\sqrt{x^2-9}-3\ln\left(x+\sqrt{x^2-9}\right)+C \end{cases}$$



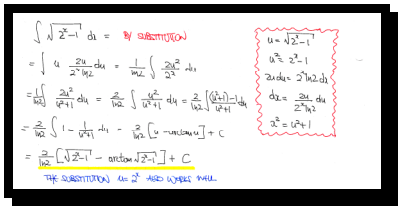
660. $$\int \frac{1}{1+\tan x}\,dx = \frac{1}{2}x+\frac{1}{2}\ln\left|\cos x+\sin x\right|+C$$



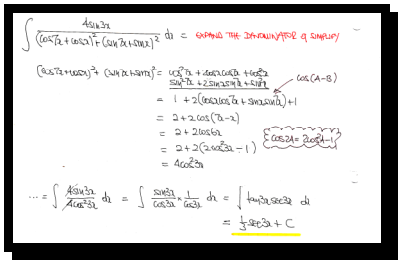
661. $$\int \frac{\sqrt{x}}{1-x^3}\,dx = \begin{cases} \frac{2}{3}\operatorname{artanh}\left(x^{\frac{3}{2}}\right)+C \\ \frac{1}{3}\ln\left|\frac{1+x^{\frac{3}{2}}}{1-x^{\frac{3}{2}}}\right|+C \end{cases}$$



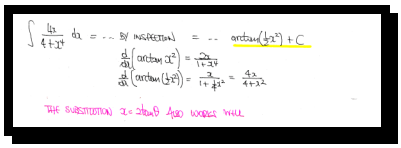
662. $\displaystyle\int \sqrt{2^x-1}\,dx=\frac{2}{\ln 2}\left[\sqrt{2^x-1}-\arctan\left(\sqrt{2^x-1}\right)\right]+C$



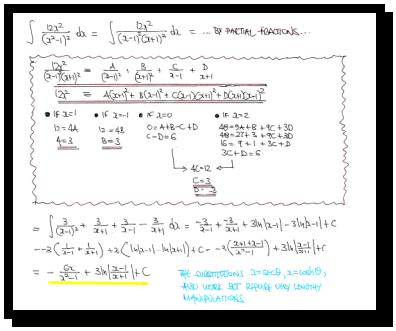
663. $\displaystyle\int \frac{4\sin 3x}{(\cos 7x+\cos x)^2+(\sin 7x+\sin x)^2}\,dx=\frac{1}{3}\sec 3x+C$



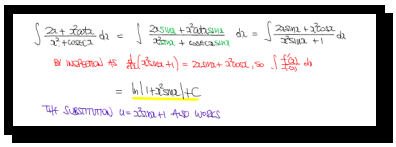
664. $\displaystyle\int \frac{4x}{4+x^4}\,dx=\arctan\left(\frac{1}{2}x^2\right)+C$



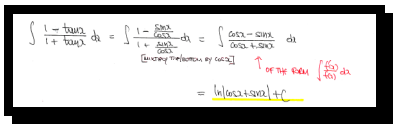
665. $$\int \frac{12x^2}{\left(x^2-1\right)^2}\,dx=-\frac{6x}{x^2-1}+3\ln\left|\frac{x-1}{x+1}\right|+C$$



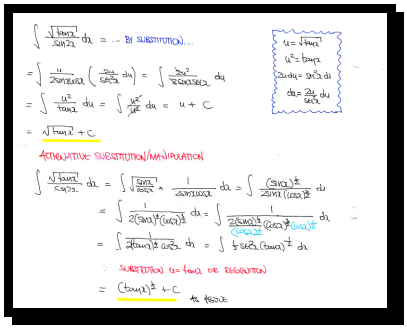
666. $$\int \frac{2x+x^2\cot x}{x^2+\operatorname{cosec} x}\,dx=\ln\left|1+x^2\sin x\right|+C$$



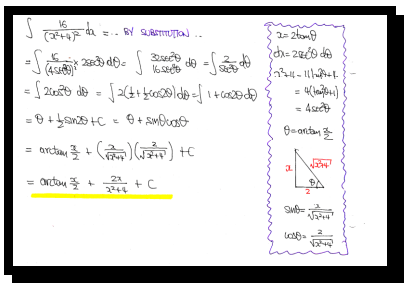
667. $$\int \frac{1-\tan x}{1+\tan x}\,dx=\ln\left|\cos x+\sin x\right|+C$$



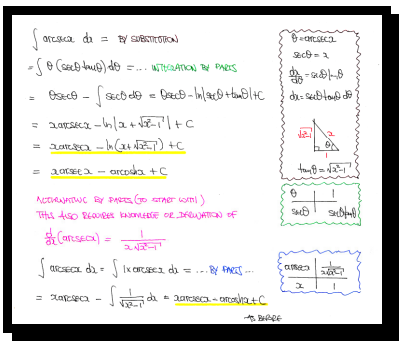
668. $$\int \frac{\sqrt{\tan x}}{\sin 2x}\,dx = \sqrt{\tan x} \ + \ C$$



669. $$\int \frac{16}{\left(x^2+4\right)^2}\,dx = \frac{2x}{x^2+4} + \arctan\left(\frac{1}{2}x\right) \ + \ C$$

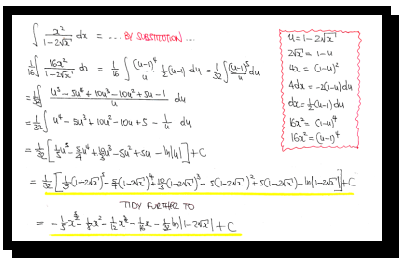


670. $$\int \operatorname{arcsec} x \ dx = \begin{cases} x\operatorname{arcsec} x - \operatorname{arcosh} x \ + \ C \\ x\operatorname{arcsec} x - \ln\left(x+\sqrt{x^2-1}\right) \ + \ C \end{cases}$$

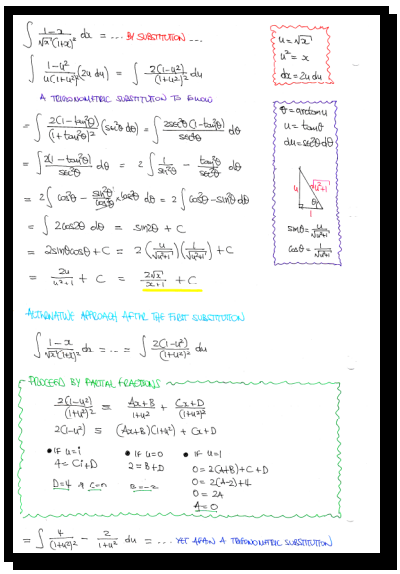


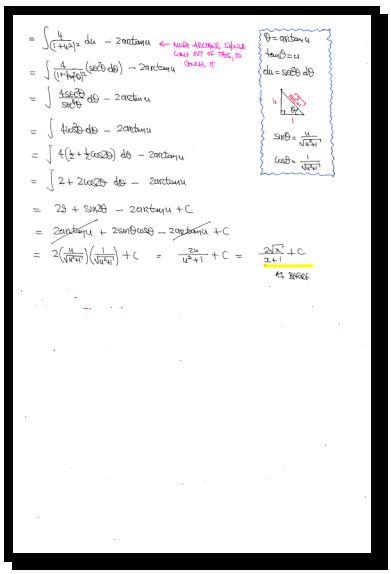
671. $\displaystyle\int \frac{x^2}{1-2\sqrt{x}}\,dx=-\frac{1}{5}x^{\frac{5}{2}}-\frac{1}{8}x^2-\frac{1}{12}x^{\frac{3}{2}}-\frac{1}{16}x-\frac{1}{32}\ln\left|1-2\sqrt{x}\right|+C$

$$=\frac{1}{32}\left[\frac{1}{5}u^5-\frac{5}{4}u^4+\frac{10}{3}u^3-5u^2+5u-\ln|u|\right]+C,\qquad u=1-2\sqrt{x}$$

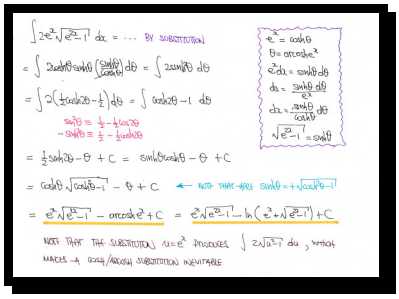


672. $\displaystyle\int \frac{1-x}{(1+x)^2\sqrt{x}}\,dx=\frac{2\sqrt{x}}{x+1}+C$

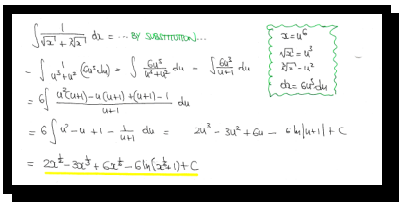




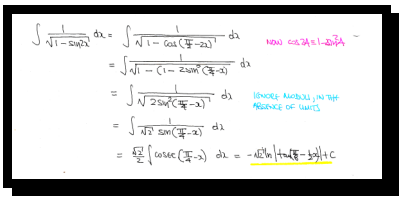
673. $$\int 2\mathrm{e}^{x}\sqrt{\mathrm{e}^{2x}-1}\,dx=\begin{cases}\mathrm{e}^{x}\sqrt{\mathrm{e}^{2x}-1}-\operatorname{arcosh}\mathrm{e}^{x}\ +\ C\\ \mathrm{e}^{x}\sqrt{\mathrm{e}^{2x}-1}-\ln\left(\mathrm{e}^{x}+\sqrt{\mathrm{e}^{2x}-1}\right)\ +\ C\end{cases}$$



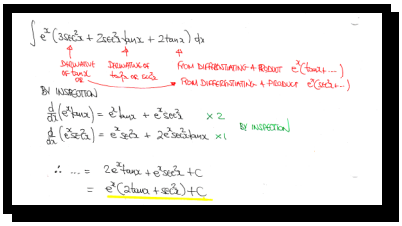
674. $$\int \frac{1}{\sqrt{x}+\sqrt[3]{x}}\,dx=2x^{\frac{1}{2}}-3x^{\frac{1}{3}}-6\ln\left|1+x^{\frac{1}{6}}\right|\ +\ C$$



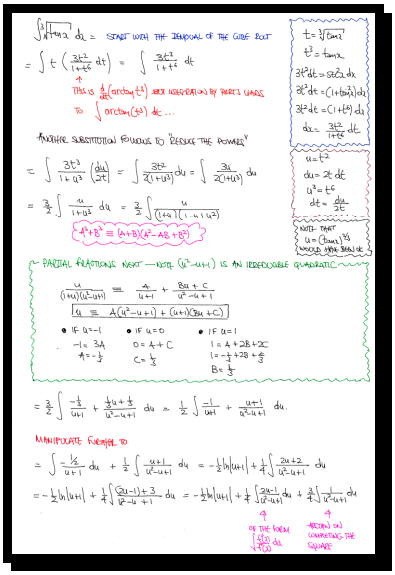
675. $$\int \frac{1}{\sqrt{1-\sin 2x}}\,dx=-\sqrt{2}\ln\left|\tan\left(\frac{1}{8}\pi-\frac{1}{2}x\right)\right|\ +\ C$$

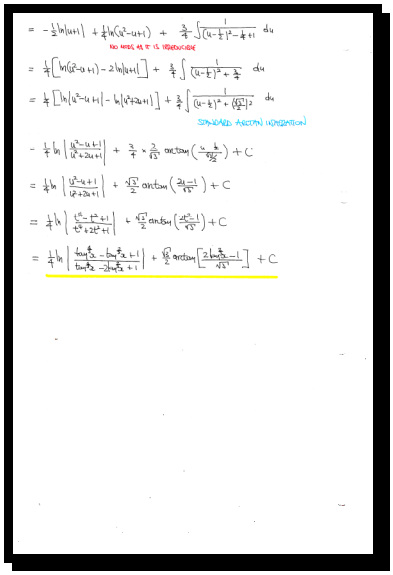


676. $$\int \mathrm{e}^x\left(3\sec^2 x+2\sec^2 x\tan x+2\tan x\right)dx=\mathrm{e}^x\left(\sec^2 x+2\tan x\right)\ +\ C$$

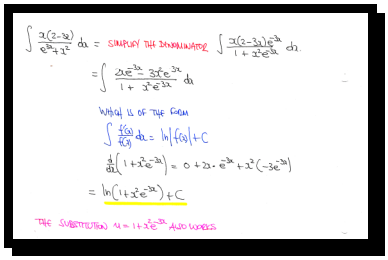


677. $$\int \sqrt[3]{\tan x}\ dx=\frac{1}{4}\ln\left|\frac{\tan^{\frac{4}{3}}x-\tan^{\frac{2}{3}}x+1}{\tan^{\frac{4}{3}}x-2\tan^{\frac{2}{3}}x+1}\right|+\frac{\sqrt{3}}{2}\arctan\left[\frac{2\tan^{\frac{2}{3}}x-1}{\sqrt{3}}\right]\ +\ C$$

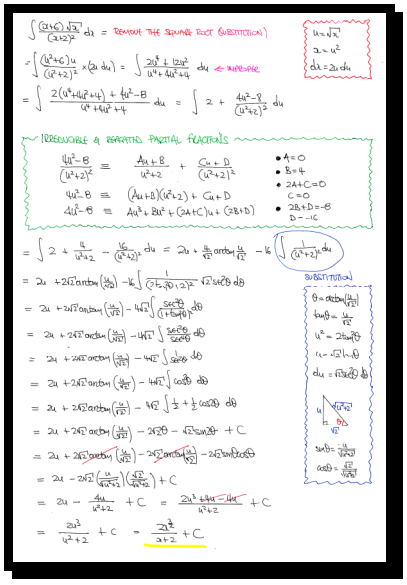


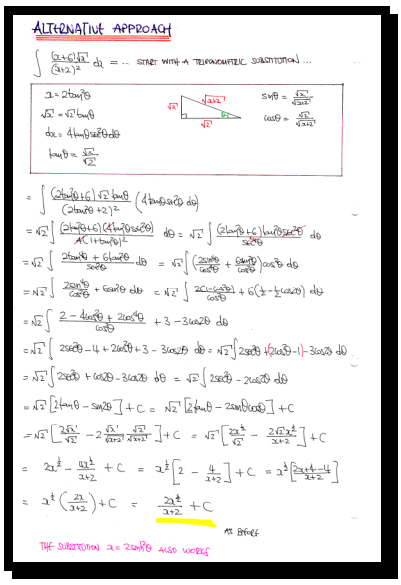


678. $$\int \frac{x(2-3x)}{x^2+\mathrm{e}^{3x}}\,dx=\ln\left(1+x^2\,\mathrm{e}^{-3x}\right)\ +\ C$$

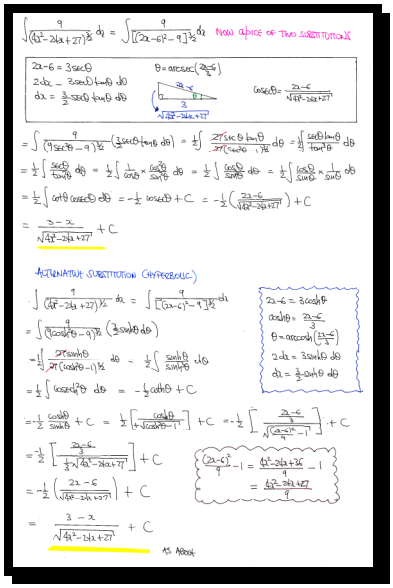


679. $$\int \frac{(x+6)}{(x+2)^2}\,dx = \frac{2x^{\frac{3}{2}}}{x+2} + C$$

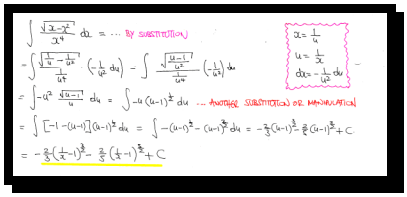




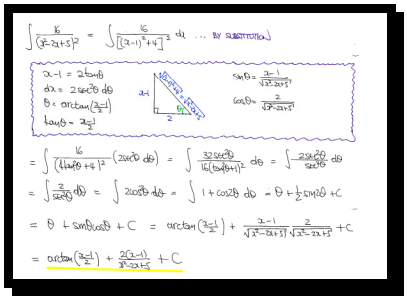
680. $$\int \frac{9}{\left(4x^2-24x+27\right)^{\frac{3}{2}}}\,dx = \frac{3-x}{\sqrt{4x^2-24x+27}} + C$$



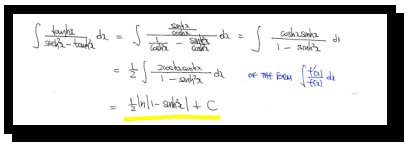
681. $$\int \frac{\sqrt{x-x^2}}{x^4}\,dx=-\frac{2}{3}\left(\frac{1}{x}-1\right)^{\frac{3}{2}}-\frac{2}{5}\left(\frac{1}{x}-1\right)^{\frac{5}{2}}+C$$



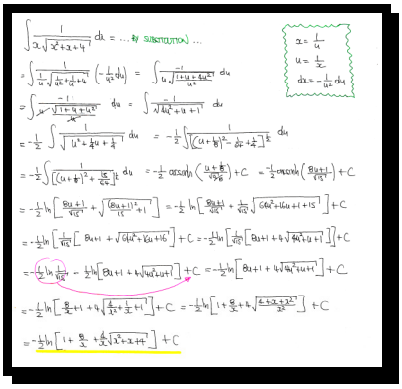
682. $$\int \frac{16}{\left(x^2-2x+5\right)^2}\,dx=\arctan\left[\frac{1}{2}(x-1)\right]+\frac{2(x-1)}{x^2-2x+5}+C$$



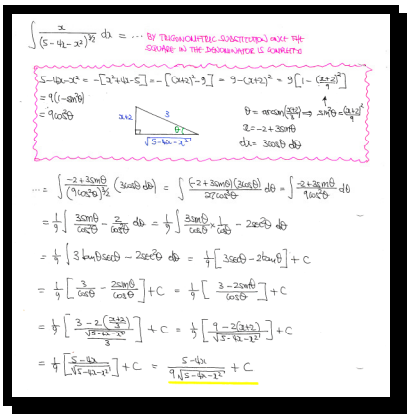
683. $$\int \frac{\tanh x}{\operatorname{sech}^2 x-\tanh^2 x}\,dx=\frac{1}{2}\ln\left|1-\sinh^2 x\right|+C$$



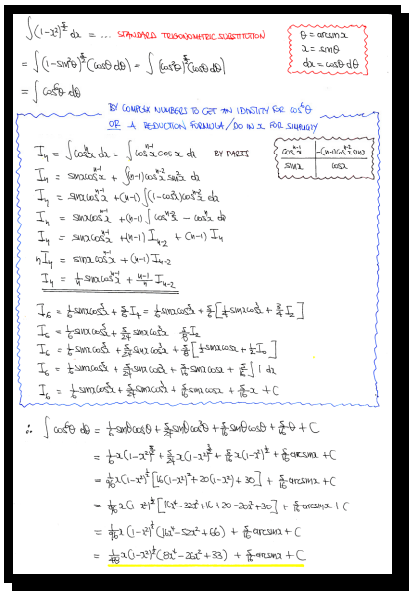
684. $$\int \frac{1}{x\sqrt{x^2+x+4}}\,dx=-\frac{1}{2}\ln\left|1+\frac{8}{x}+\frac{4}{x}\sqrt{x^2+x+4}\right|+C$$



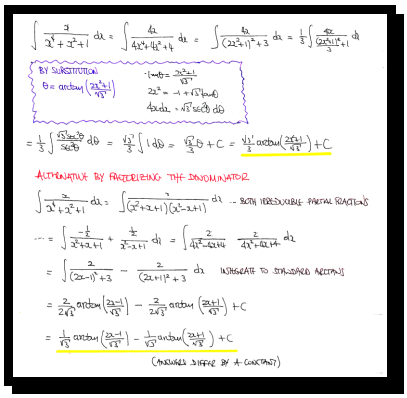
685. $$\int \frac{x}{\left(5-4x-x^2\right)^{\frac{3}{2}}}\,dx=\frac{5-4x}{9\sqrt{5-4x-x^2}}+C$$



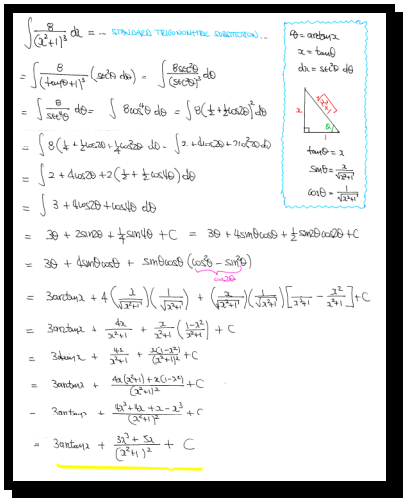
686. $\displaystyle\int \left(1-x^2\right)^{\frac{5}{2}}\,dx=\frac{1}{48}x\left(8x^4-26x^2+33\right)\left(1-x^2\right)^{\frac{1}{2}}+\frac{5}{16}\arcsin x\ +\ C$



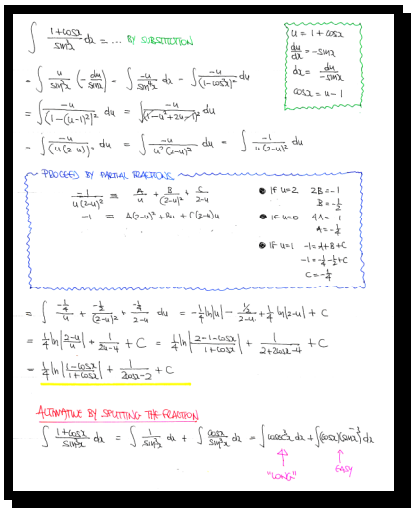
687. $\displaystyle\int \frac{x}{x^4+x^2+1}\,dx=\begin{cases}\dfrac{1}{\sqrt{3}}\arctan\left(\dfrac{2x^2+1}{\sqrt{3}}\right)\ +\ C\\ \dfrac{1}{\sqrt{3}}\arctan\left(\dfrac{2x-1}{\sqrt{3}}\right)-\dfrac{1}{\sqrt{3}}\arctan\left(\dfrac{2x+1}{\sqrt{3}}\right)\ +\ C\end{cases}$



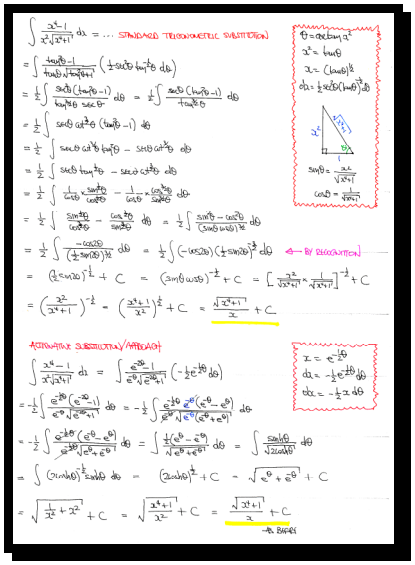
688. $$\int \frac{8}{\left(x^2+1\right)^3}\,dx = 3\arctan x + \frac{3x^3+5x}{\left(x^2+1\right)^2} + C$$

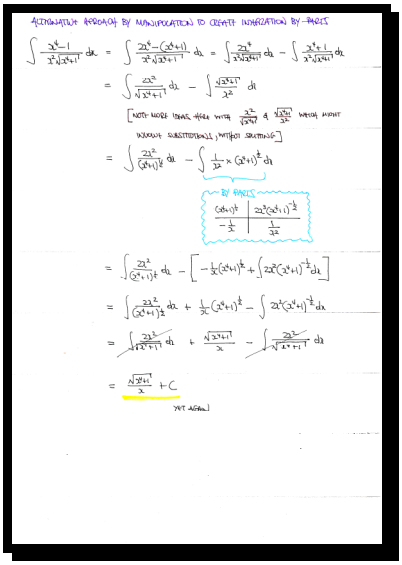


689. $$\int \frac{1+\cos x}{\sin^2 x}\,dx = \frac{1}{4}\ln\left|\frac{1-\cos x}{1+\cos x}\right| + \frac{1}{2\cos x - 2} + C$$

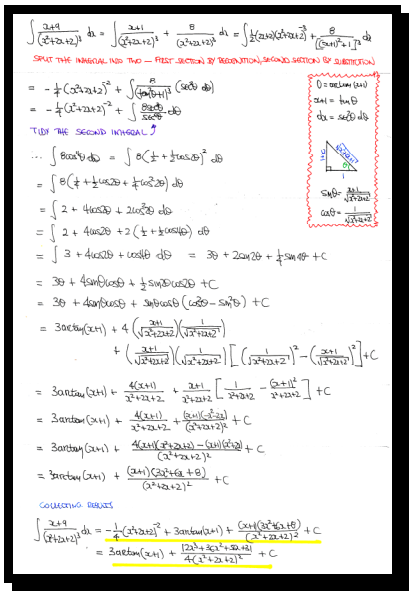


690. $$\int \frac{x^4-1}{x^2\sqrt{x^4+1}}\,dx=\frac{\sqrt{x^4+1}}{x}+C$$

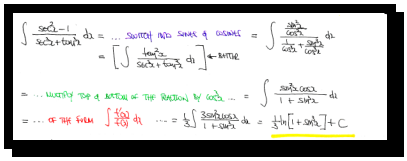




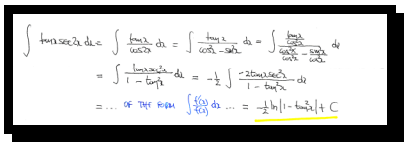
691. $$\int \frac{x+9}{\left(x^2+2x+2\right)^3}\,dx=3\arctan\left(x+1\right)+\frac{12x^3+36x^2+56x+31}{\left(x^2+2x+2\right)^2}+C$$



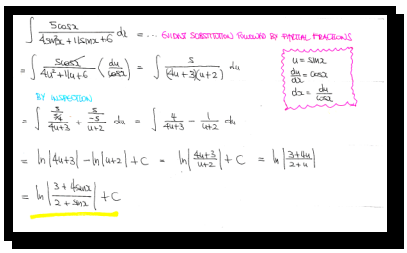
692. $$\int \frac{\sec^2 x-1}{\sec^3 x+\tan^3 x}\,dx=\frac{1}{3}\ln\left(1+\sin^3 x\right)\ +\ C$$



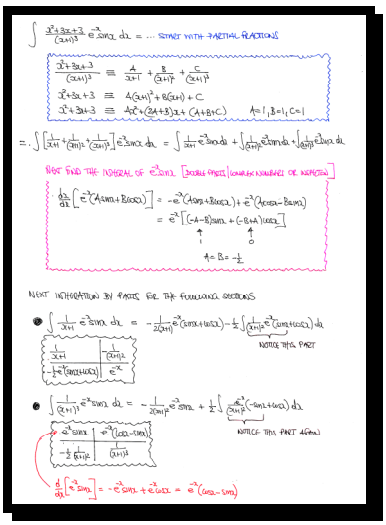
693. $$\int \tan x\sec 2x\,dx=-\frac{1}{2}\ln\left|1-\tan^2 x\right|\ +\ C$$

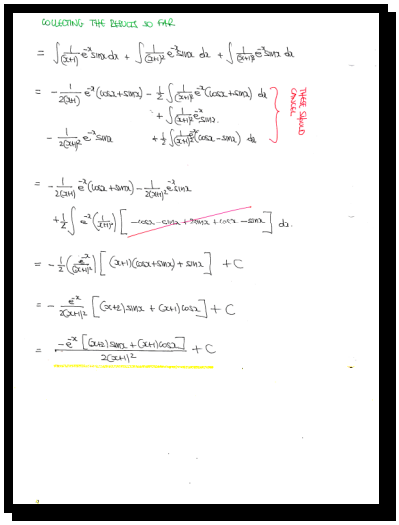


694. $$\int \frac{5\cos x}{(2+\sin x)(3+4\sin x)}\,dx=\ln\left|\frac{3+4\sin x}{2+\sin x}\right|\ +\ C$$

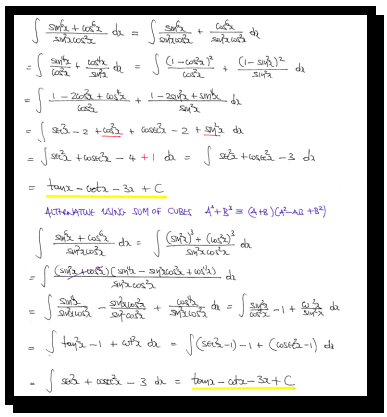


695. $$\int \frac{x^2+3x+3}{(x+1)^3}\left(\mathrm{e}^{-x}\sin x\right)dx=\frac{-\mathrm{e}^{-x}\left[(x+2)\sin x+(x+1)\cos x\right]}{2(x+1)^2}+C$$





696. $$\int \frac{\sin^6 x+\cos^6 x}{\sin^2 x\cos^2 x}dx=\begin{bmatrix}-3x+\tan x-\cot x+C\\ -3x-2\cot 2x+C\end{bmatrix}$$



697. $$\int \frac{3\sin^2 x\cos^2 x}{\left(\cos^3 x-\sin^3 x\right)^2}\,dx=\frac{1}{1-\tan^3 x}\ +\ C$$

$\int \frac{3\sin^2 x\cos^2 x}{(\cos^3 x-\sin^3 x)^2}\,dx = \int \frac{3\sin^2 x\cos^2 x}{\cos^6 x\left(1-\frac{\sin^3 x}{\cos^3 x}\right)^2}\,dx$

$= \int \frac{3\sin^2 x\cos^2 x}{\cos^2 x}\left(1-\tan^3 x\right)^{-2}\,dx = \int 3\tan^2 x\sec^2 x\left(1-\tan^3 x\right)^{-2}\,dx$

BY INSPECTION OR SUBSTITUTION $u=\tan x$

$= C\left(1-\tan^3 x\right)^{-1}+C = \frac{1}{1-\tan^3 x}+C$

698. $$\int \frac{\sin^8 x-\cos^8 x}{1-\frac{1}{2}\sin^2 2x}\,dx=\frac{1}{2}\sin 2x\ +\ C$$

$\int \frac{\sin^8 x-\cos^8 x}{1-\frac{1}{2}\sin^2 2x}\,dx = \int \frac{\left(\sin^4 x\right)^2-\left(\cos^4 x\right)^2}{1-\frac{1}{2}\left(\sin 2x\right)^2}\,dx$

$= \int \frac{\left(\sin^4 x-\cos^4 x\right)\left(\sin^4 x+\cos^4 x\right)}{1-\frac{1}{2}\left(2\sin x\cos x\right)^2}\,dx = \int \frac{\left(\sin^4 x-\cos^4 x\right)\left(\sin^4 x+\cos^4 x\right)}{1-2\sin^2 x\cos^2 x}\,dx$

$= \int \frac{\left(\sin^4 x-\cos^4 x\right)\left(\sin^4 x+\cos^4 x\right)}{(1)^2-2\sin^2 x\cos^2 x}\,dx = \int \frac{\left(\sin^4 x-\cos^4 x\right)\left(\sin^4 x+\cos^4 x\right)}{\left(\cos^2 x+\sin^2 x\right)^2-2\sin^2 x\cos^2 x}\,dx$

$= \int \frac{\left(\sin^4 x-\cos^4 x\right)\left(\sin^4 x+\cos^4 x\right)}{\cos^4 x+2\sin^2 x\cos^2 x+\sin^4 x-2\sin^2 x\cos^2 x}\,dx$

$= \int \frac{\left(\sin^4 x-\cos^4 x\right)\left(\cos^4 x+\sin^4 x\right)}{\cos^4 x+\sin^4 x}\,dx = \int \sin^4 x-\cos^4 x\,dx$

$= \int \left(\sin^2 x-\cos^2 x\right)\left(\sin^2 x+\cos^2 x\right)\,dx = \int \cos 2x\,dx$

$= \frac{1}{2}\sin 2x+C$

699. $$\int 12x^2\arctan x\,dx=4x^3\arctan x-2x^2+2\ln\left(x^2+1\right)\ +\ \mathrm{C}$$

ATTEMPT THIS WITHOUT SUBSTITUTIONS/PARTS, JUST A BIT OF COMMON SENSE

$\frac{d}{dx}\left[4x^3\arctan x\right] = 12x^2\arctan x + 4x^3\times\frac{1}{1+x^2}$

INTEGRATE BOTH SIDES TO x

$\int \frac{d}{dx}\left[4x^3\arctan x\right]dx = \int 12x^2\arctan x\,dx + \int \frac{4x^3}{1+x^2}\,dx$

$4x^3\arctan x = \int 12x^2\arctan x\,dx + \int \frac{4x(x^2+1)+4x}{x^2+1}\,dx$

$4x^3\arctan x = \int 12x^2\arctan x\,dx + \int 4x + \frac{4x}{x^2+1}\,dx$

$4x^3\arctan x = \int 12x^2\arctan x\,dx + \int 4x\,dx + 2\int \frac{2x}{x^2+1}\,dx$

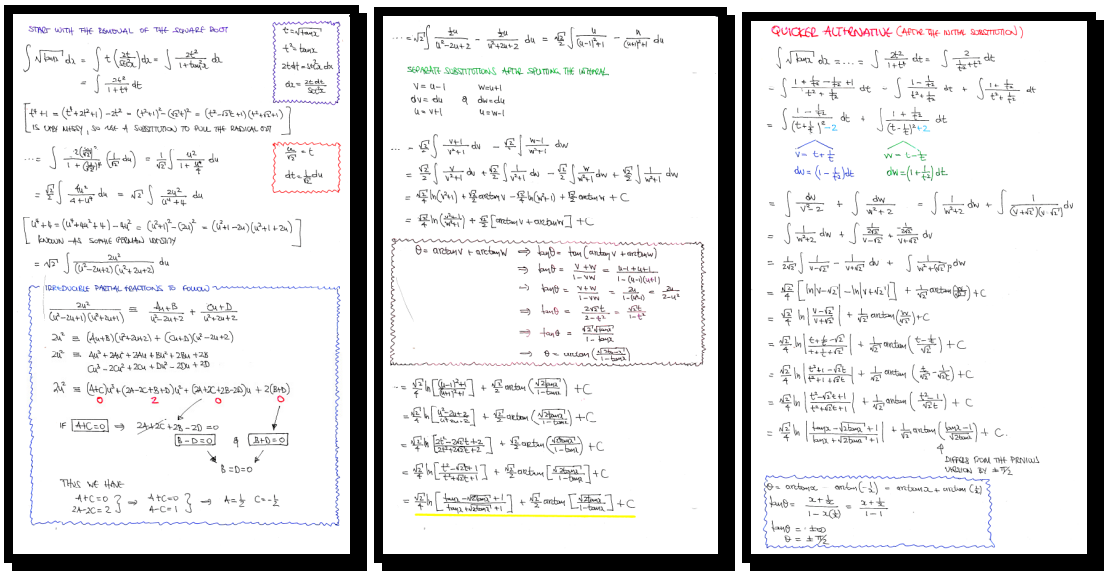
$4x^3\arctan x = \int 12x^2\arctan x\,dx + 2x^2 + 2\ln\left(x^2+1\right)+C$

REARRANGE TO GET RESULT

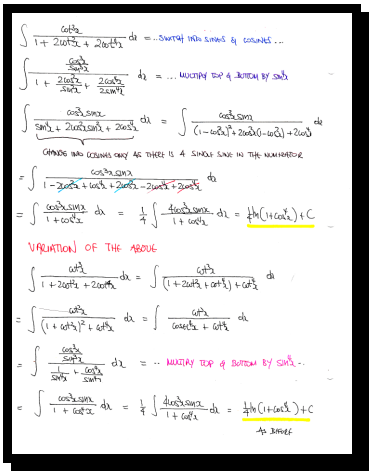
$\int 12x^2\arctan x\,dx = 4x^3\arctan x - 2x^2 - 2\ln\left(x^2+1\right)$

700. $\displaystyle\int \sqrt{\tan x}\,dx = \ldots$

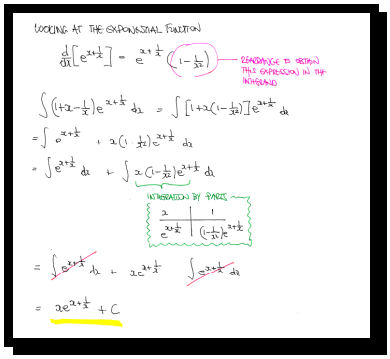
$$\ldots = \begin{cases} \dfrac{\sqrt{2}}{4}\ln\left|\dfrac{\tan x-\sqrt{2\tan x}+1}{\tan x+\sqrt{2\tan x}+1}\right|+\dfrac{\sqrt{2}}{2}\arctan\left[\dfrac{\sqrt{2\tan x}}{1-\tan x}\right]+C \\ \dfrac{\sqrt{2}}{4}\ln\left|\dfrac{\tan x-\sqrt{2\tan x}+1}{\tan x+\sqrt{2\tan x}+1}\right|+\dfrac{\sqrt{2}}{2}\arctan\left[\dfrac{-1+\tan x}{\sqrt{2\tan x}}\right]+C \end{cases}$$



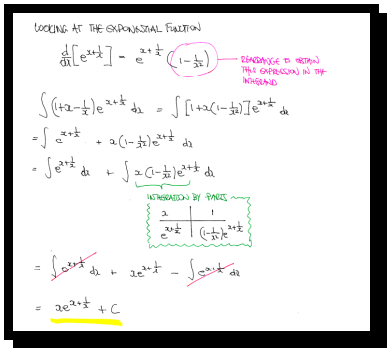
701. $\displaystyle\int \frac{\cot^3 x}{1+2\cot^2 x+2\cot^4 x}\,dx = -\frac{1}{4}\ln\left(1+\cos^4 x\right)+C$



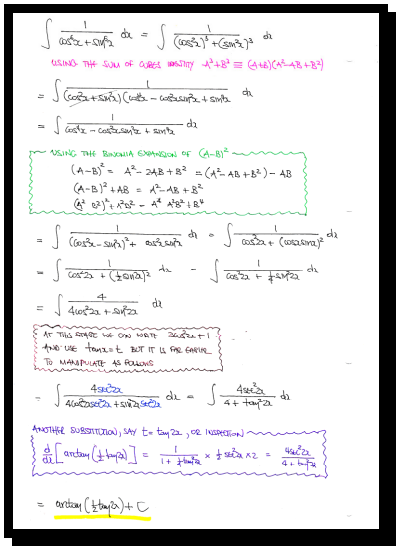
702. $\displaystyle\int \left(2x^2+1\right)\mathrm{e}^{x^2}\,dx = x\,\mathrm{e}^{x^2} + C$



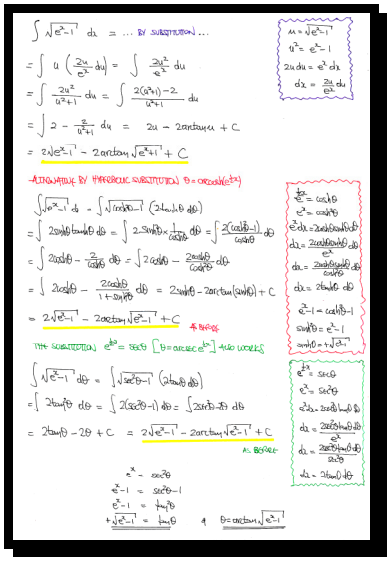
703. $\displaystyle\int \left(1+x-\frac{1}{x}\right)\mathrm{e}^{x+\frac{1}{x}}\,dx = x\,\mathrm{e}^{x+\frac{1}{x}} + C$



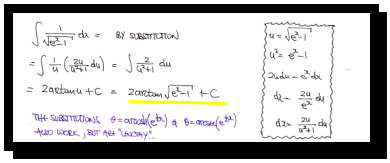
704. $$\int \frac{1}{\cos^6 x+\sin^6 x}\,dx=\arctan\left(\frac{1}{2}\tan 2x\right)+C$$



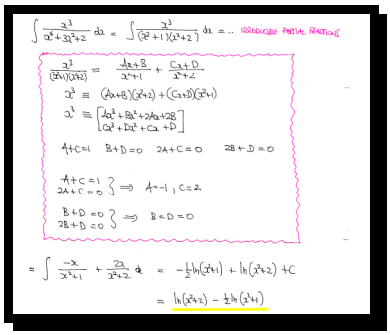
705. $$\int \sqrt{\mathrm{e}^x-1}\,dx=2\sqrt{\mathrm{e}^x-1}-2\arctan\left(\sqrt{\mathrm{e}^x-1}\right)+C$$



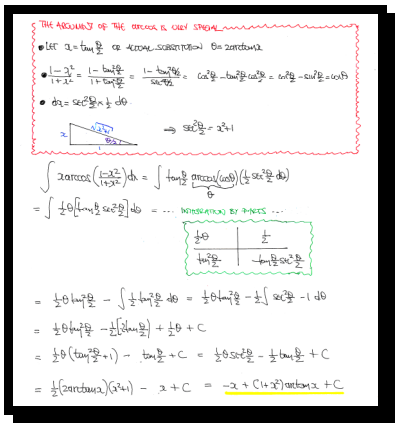
706. $$\int \frac{1}{\sqrt{\mathrm{e}^x-1}}\,dx = 2\arctan\left(\sqrt{\mathrm{e}^x-1}\right) + C$$



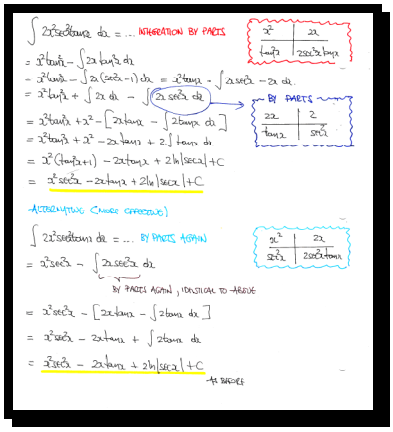
707. $$\int \frac{1}{x^4+3x^2+2}\,dx = \ln\left(x^2+2\right)-\frac{1}{2}\ln\left(x^2+1\right) + C$$



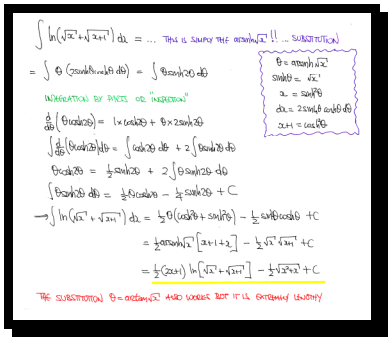
708. $$\int x\arccos\left[\frac{1-x^2}{1+x^2}\right]dx = -x+\left(1+x^2\right)\arctan x + \mathrm{C}$$



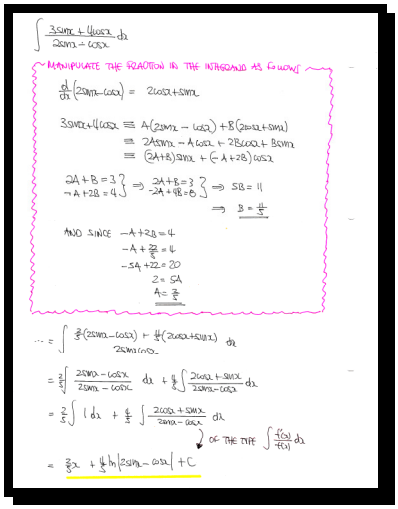
709. $\displaystyle\int 2x^2\sec^2 x\tan x\ dx = x^2\sec^2 x - 2x\sec x + 2\ln\left|\sec x\right| + C$



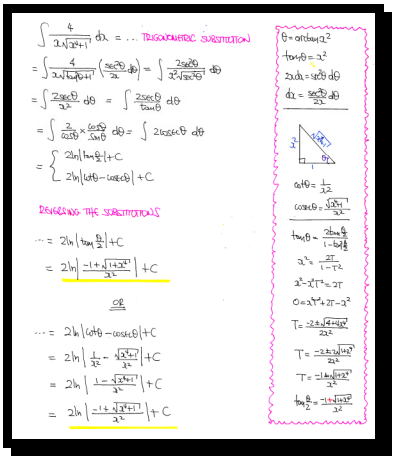
710. $\displaystyle\int \ln\left(\sqrt{x}+\sqrt{x+1}\right)dx = \frac{1}{2}(2x+1)\ln\left[\sqrt{x}+\sqrt{x+1}\right] - \frac{1}{2}\sqrt{x^2+x} + C$

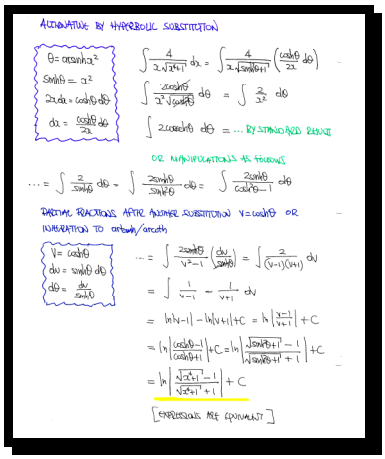


711. $\displaystyle\int \frac{3\sin x+4\cos x}{2\sin x-\cos x}\,dx=\frac{2}{5}x+\frac{11}{5}\ln\left|2\sin x-4\cos x\right|\ +\ C$

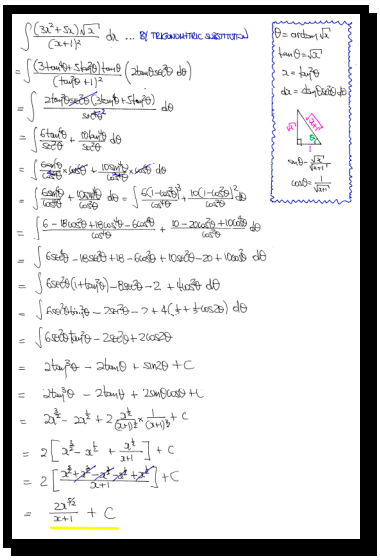


712. $\displaystyle\int \frac{4}{x\sqrt{x^4+1}}\,dx=\begin{bmatrix}\ln\left[\dfrac{\sqrt{x^4+1}-1}{\sqrt{x^4+1}+1}\right]\ +\ C\\ 2\ln\left[\dfrac{1-\sqrt{x^4+1}}{x^2}\right]\ +\ C\end{bmatrix}$

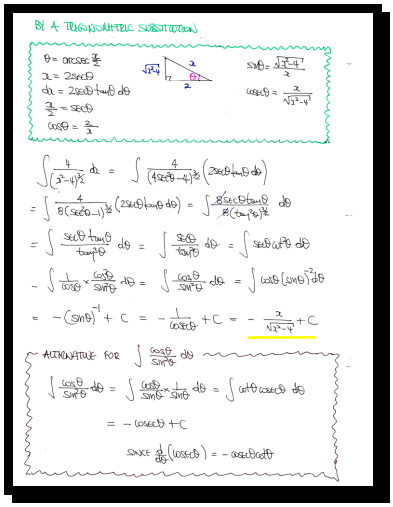


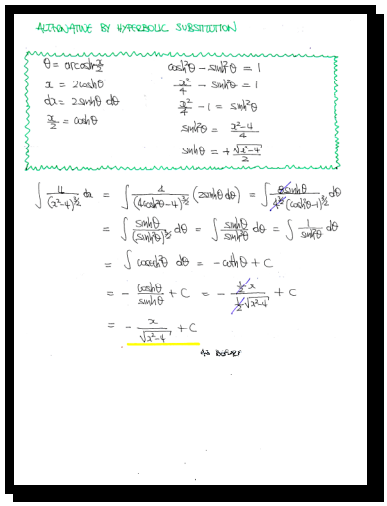


713. $$\int \frac{\left(3x^2+5x\right)\sqrt{x}}{\left(x+1\right)^2}\,dx=\frac{2x^{\frac{5}{2}}}{x+1}+C$$

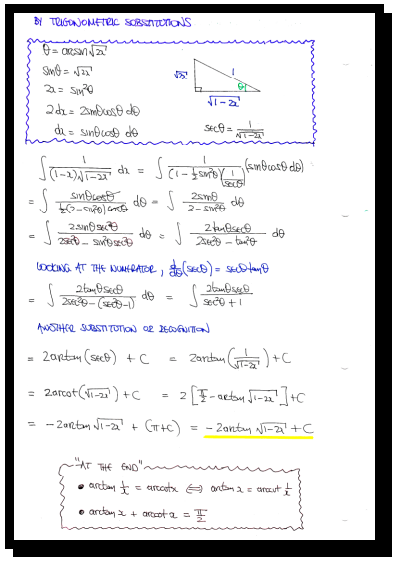


714. $$\int \frac{4}{\left(x^2-4\right)^{\frac{3}{2}}}\,dx=-\frac{x}{\sqrt{x^2-4}}+C$$

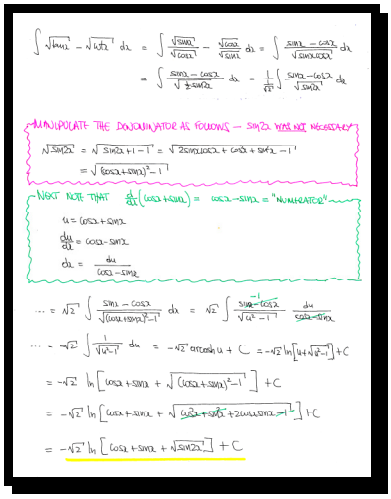




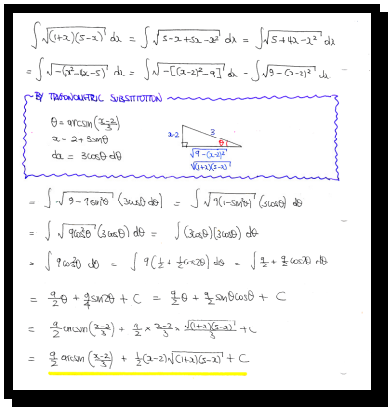
715. $\displaystyle\int \frac{1}{(1-x)\sqrt{1-2x}}\,dx = -2\arctan\left(\sqrt{1-2x}\right) + C$



716. $\displaystyle\int \sqrt{\tan x} - \sqrt{\cot x}\,dx = -\sqrt{2}\ln\left[\cos x + \sin x + \sqrt{\sin 2x}\right] + C$

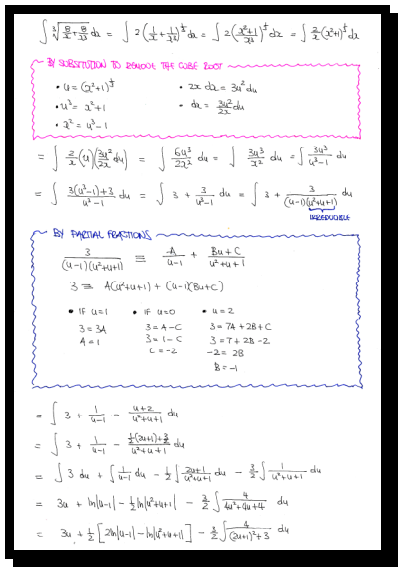


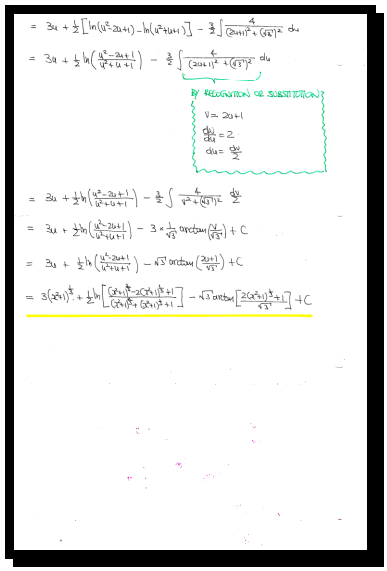
717. $\displaystyle\int \sqrt{(1+x)(5-x)}\,dx=\frac{9}{2}\arcsin\left[\frac{1}{3}(x-2)\right]+\frac{1}{2}(x-2)\sqrt{(1+x)(5-x)}\ +\ C$



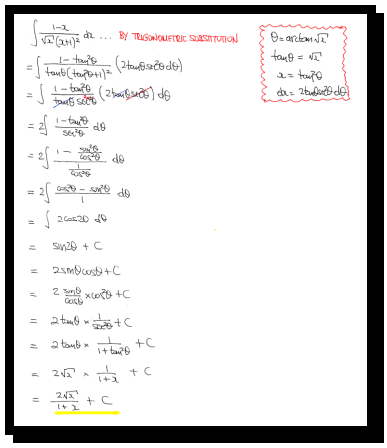
718. $\displaystyle\int \sqrt[3]{\frac{8}{x}+\frac{8}{x^3}}\,dx=\ldots$

$$3\left(x^2+1\right)^{\frac{1}{3}}+\frac{1}{2}\ln\left[\frac{\left(x^2+1\right)^{\frac{2}{3}}-2\left(x^2+1\right)^{\frac{1}{3}}+1}{\left(x^2+1\right)^{\frac{2}{3}}+\left(x^2+1\right)^{\frac{1}{3}}+1}\right]-\sqrt{3}\arctan\left[\frac{2\left(x^2+1\right)^{\frac{1}{3}}+1}{\sqrt{3}}\right]\ +\ C$$

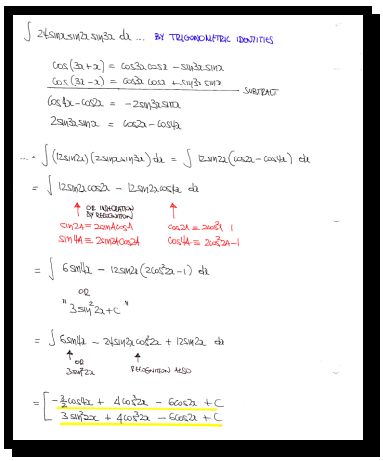




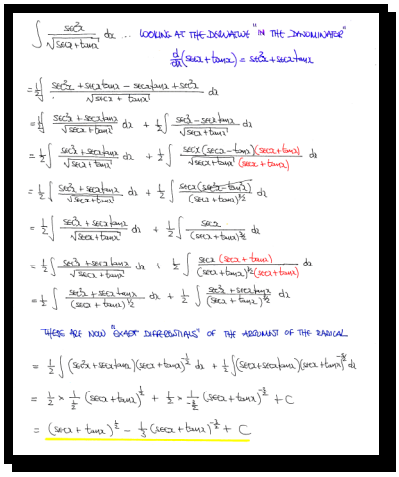
719. $$\int \frac{1-x}{\sqrt{x}\left(x+1\right)^2}\,dx=\frac{2\sqrt{x}}{x+1}\ +\ C$$



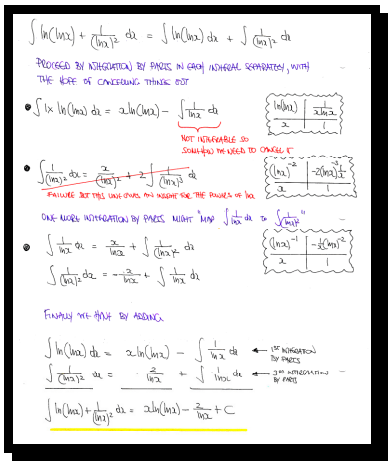
720. $$\int 24\sin x\sin 2x\sin 3x\ dx=\begin{bmatrix}3\sin^2 2x+4\cos^3 2x-6\cos 2x\ +\ C\\ -\frac{3}{2}\cos 4xx+4\cos^3 2x-6\cos 2x\ +\ C\end{bmatrix}$$



721. $\displaystyle\int \frac{\sec^2 x}{\sqrt{\sec x+\tan x}}\,dx=(\sec x+\tan x)^{\frac{1}{2}}-\frac{1}{3}(\sec x+\tan x)^{-\frac{3}{2}}+C$

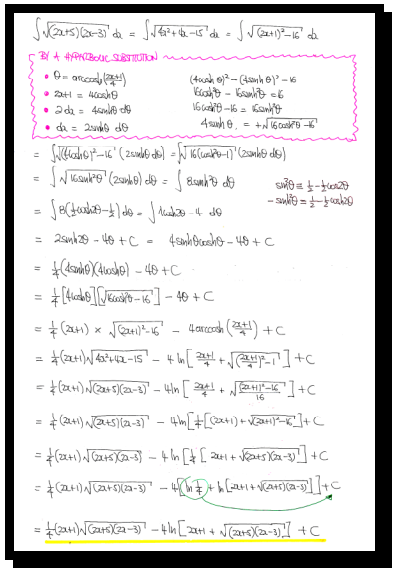


722. $\displaystyle\int \ln(\ln x)+\frac{1}{(\ln x)^2}\,dx=x\ln(\ln x)-\frac{x}{\ln x}+C$

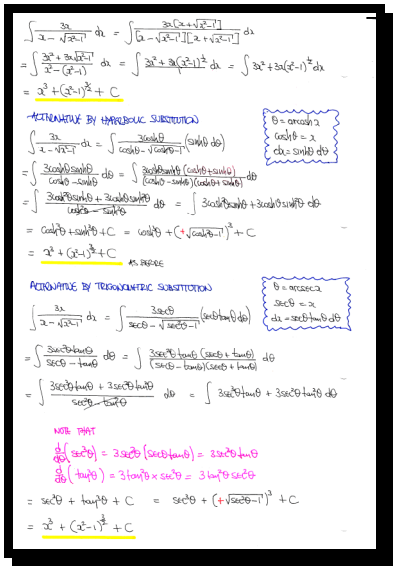


723. $\displaystyle\int\sqrt{(2x+5)(2x-3)}\,dx=...$

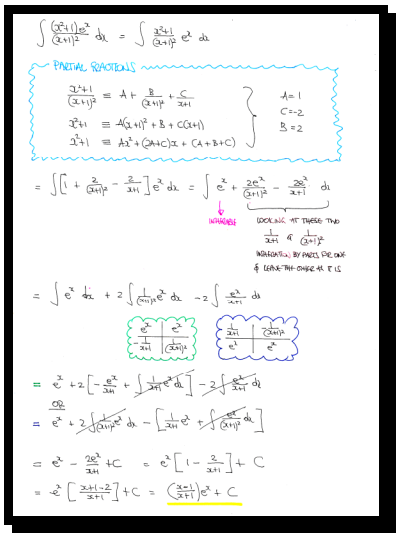
$$\frac{1}{4}(2x+1)\sqrt{(2x+5)(2x-3)}-4\ln\left[2x+1+\sqrt{(2x+5)(2x-3)}\right]+C$$



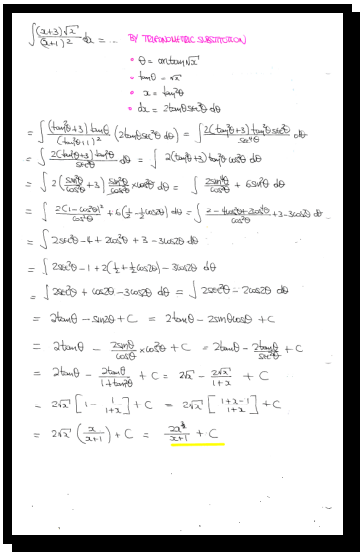
724. $\displaystyle\int\frac{3x}{x-\sqrt{x^2-1}}\,dx=x^3+\left(x^2-1\right)^{\frac{3}{2}}+C$

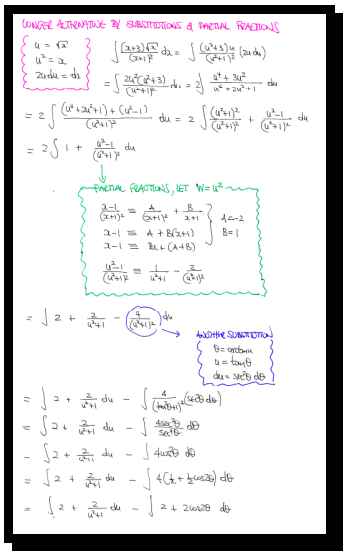


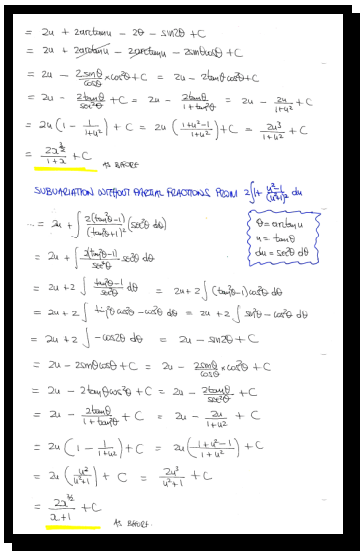
725. $$\int \frac{\left(x^2+1\right)\mathrm{e}^x}{\left(x+1\right)^2}\,dx=\left[\frac{x-1}{x+1}\right]\mathrm{e}^x\ +\ \mathrm{C}$$



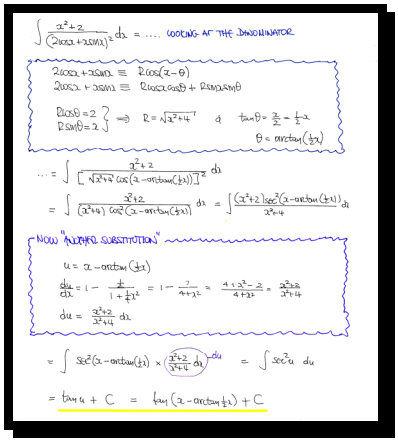
726. $$\int \frac{(x+3)\sqrt{x}}{\left(x+1\right)^2}\,dx=\frac{2x^{\frac{3}{2}}}{x+1}\ +\ C$$



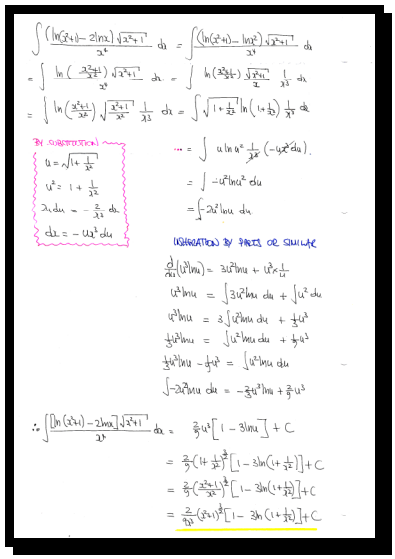




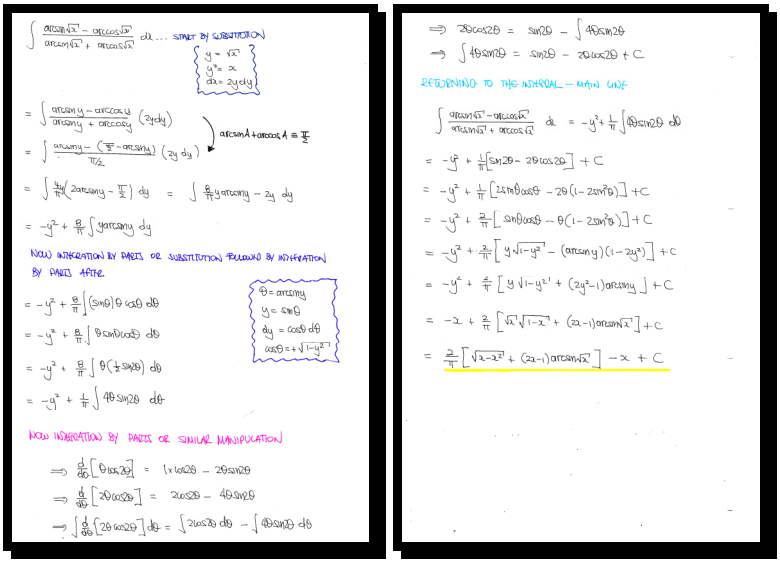
727. $$\int \frac{x^2+2}{(2\cos x+x\sin x)^2}\,dx=\tan\left[x-\arctan\left(\frac{1}{2}x\right)\right]+C$$



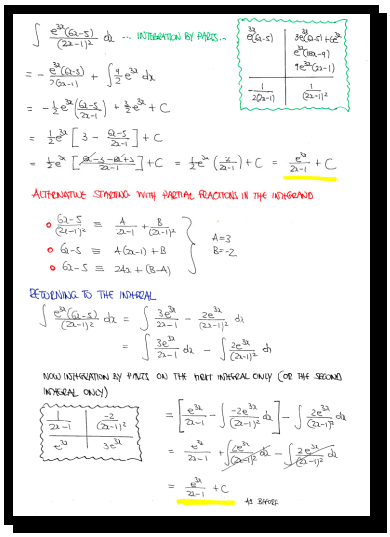
728. $$\int \frac{\left[\ln\left(x^2+1\right)-2\ln x\right]\sqrt{x^2+1}}{x^4}\,dx=\frac{2}{9x^3}\left(x^2+1\right)^{\frac{3}{2}}\left[1-3\ln\left(\frac{x^2+1}{x^2}\right)\right]+C$$



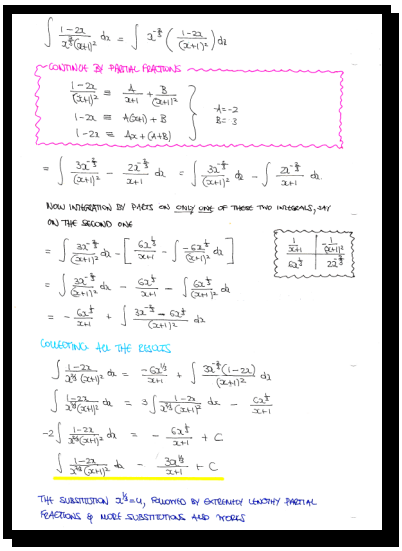
729. $$\int \frac{\arcsin\sqrt{x}-\arccos\sqrt{x}}{\arcsin\sqrt{x}+\arccos\sqrt{x}}\,dx=\frac{2}{\pi}\left[\sqrt{x-x^2}+(2x-1)\arcsin\sqrt{x}\right]-x+C$$



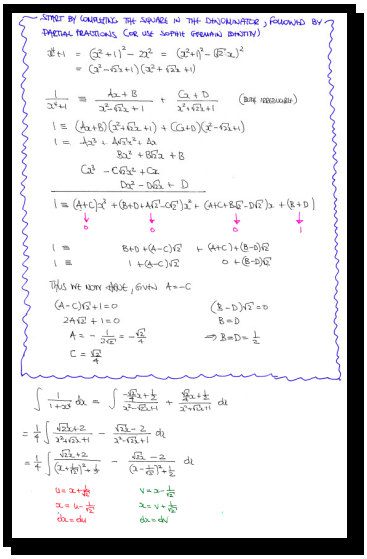
730. $$\int \frac{\mathrm{e}^{3x}(6x-5)}{(2x-1)^4}\,dx=\frac{\mathrm{e}^{3x}}{2x-1}+C$$

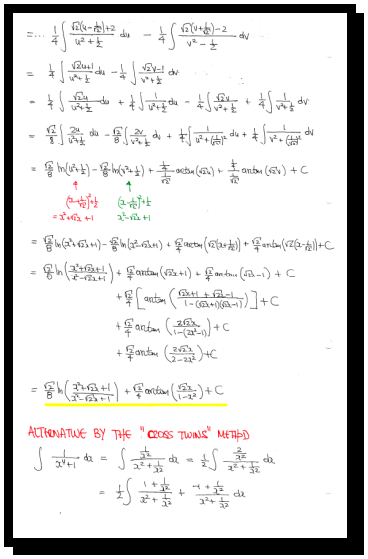


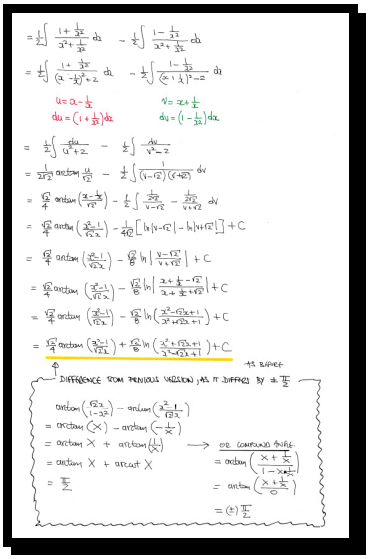
731. $$\int \frac{1-2x}{x^{\frac{2}{3}}(x+1)^4}\,dx=\frac{3x^{\frac{1}{3}}}{x+1}+C$$



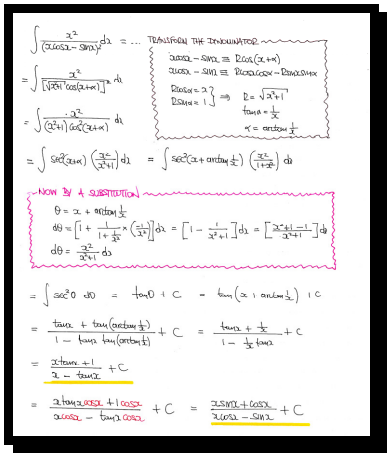
732. $$\int \frac{1}{x^4+1}\,dx=\begin{bmatrix}\dfrac{\sqrt{2}}{8}\ln\left[\dfrac{x^2+\sqrt{2}\,x+1}{x^2-\sqrt{2}\,x+1}\right]+\dfrac{\sqrt{2}}{4}\arctan\left[\dfrac{\sqrt{2}\,x}{1-x^2}\right]+C\\ \dfrac{\sqrt{2}}{8}\ln\left[\dfrac{x^2+\sqrt{2}\,x+1}{x^2-\sqrt{2}\,x+1}\right]+\dfrac{\sqrt{2}}{4}\arctan\left[\dfrac{x^2-1}{\sqrt{2}\,x}\right]+C\end{bmatrix}$$



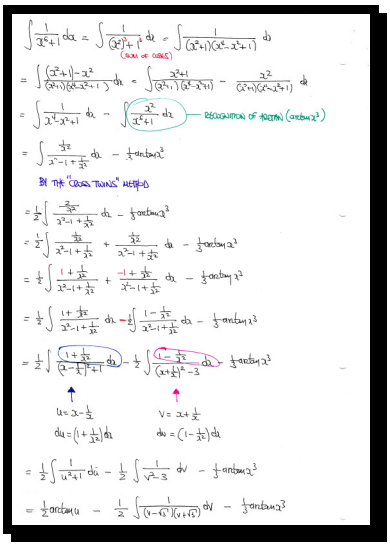


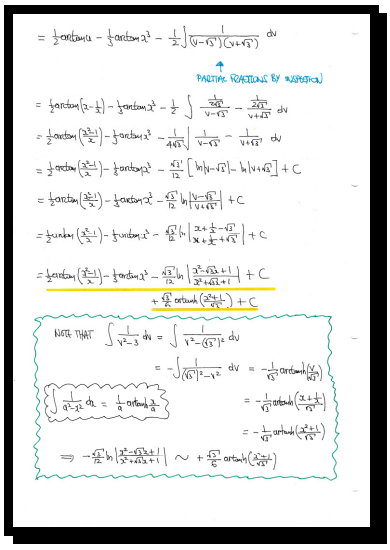


733. $$\int \frac{x^2}{\left(x\cos x-\sin x\right)^2}\,dx=\begin{bmatrix}\dfrac{x\tan x+1}{x-\tan x}+C\\ \dfrac{x\sin x+\cos x}{x\cos x-\sin x}+C\end{bmatrix}$$

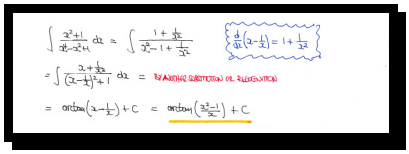


734. $$\int \frac{1}{x^6+1}\,dx=\begin{bmatrix}\dfrac{1}{2}\arctan\left[\dfrac{x^2-1}{x}\right]-\dfrac{1}{3}\arctan x^3-\dfrac{\sqrt{3}}{12}\ln\left[\dfrac{x^2-\sqrt{3}\,x+1}{x^2+\sqrt{3}\,x+1}\right]+C\\ \dfrac{1}{2}\arctan\left[\dfrac{x^2-1}{x}\right]-\dfrac{1}{3}\arctan x^3+\dfrac{\sqrt{3}}{6}\operatorname{artanh}\left[\dfrac{x^2+1}{\sqrt{3}}\right]+C\end{bmatrix}$$

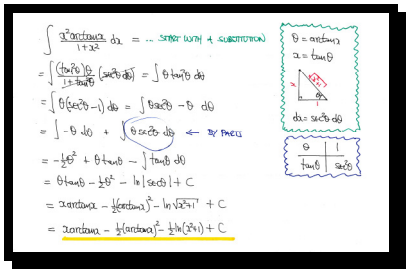




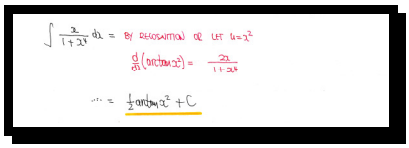
735. $$\int \frac{x^2+1}{x^4-x^2+1}\,dx = \arctan\left(\frac{x^2-1}{x}\right) + C$$



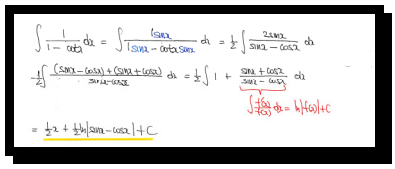
736. $$\int \frac{x^2 \arctan x}{1+x^2}\,dx = x\arctan x - \frac{1}{2}(\arctan x)^2 - \frac{1}{2}\ln\left(x^2+1\right) + C$$



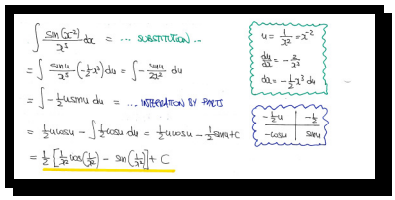
737. $$\int \frac{x}{1+x^4}\,dx = \frac{1}{2}\arctan x^2 + C$$



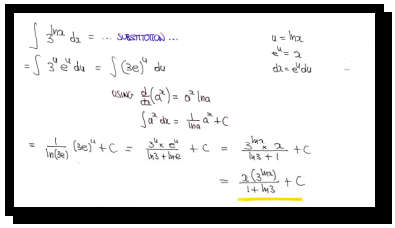
738. $$\int \frac{1}{1-\cot x}\,dx = \frac{1}{2}x + \frac{1}{2}\ln\left|\sin x - \cos x\right| + C$$



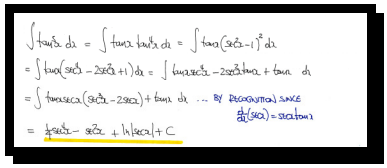
739. $$\int \frac{\sin\left(x^{-2}\right)}{x^5}\,dx=\frac{1}{2}\left[\frac{1}{x^2}\cos\left(\frac{1}{x^2}\right)-\sin\left(\frac{1}{x^2}\right)\right]+C$$



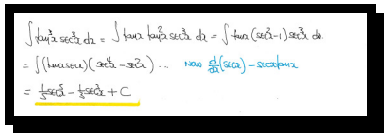
740. $$\int 3^{\ln x}\,dx=\frac{x\left(3^{\ln x}\right)}{1+\ln 3}+C$$



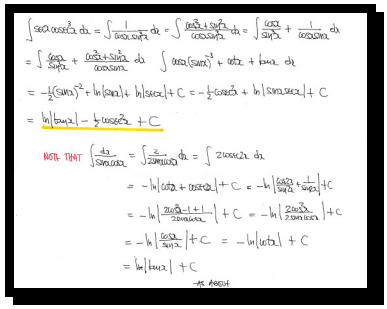
741. $$\int \tan^5 x\,dx=\frac{1}{4}\sec^4 x-\sec^2 x+\ln\left|\sec x\right|+C$$



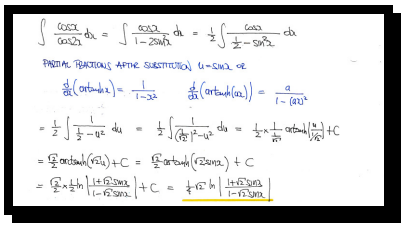
742. $$\int \tan^3 x\sec^3 x\,dx=\frac{1}{5}\sec^5 x-\frac{1}{3}\sec^3 x+C$$



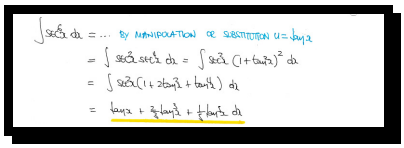
743. $\displaystyle\int \sec x \operatorname{cosec}^3 x \, dx = \ln\left|\tan x\right| - \frac{1}{2}\operatorname{cosec}^2 x + C$



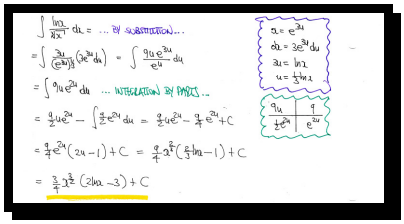
744. $\displaystyle\int \frac{\cos x}{\cos 2x}\, dx = \frac{1}{4}\sqrt{2}\ln\left|\frac{1+\sqrt{2}\sin x}{1-\sqrt{2}\sin x}\right| + C$



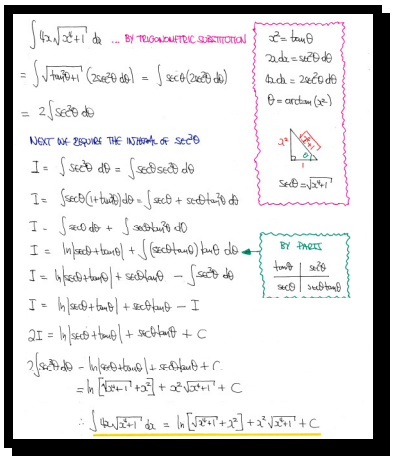
745. $\displaystyle\int \sec^6 x \, dx = \tan x + \frac{2}{3}\tan^3 x + \frac{1}{5}\tan^5 x + C$



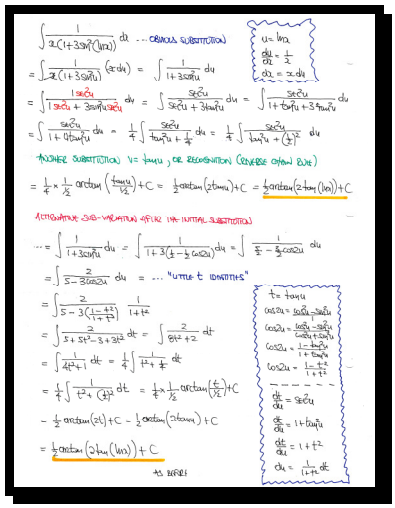
746. $$\int \frac{\ln x}{\sqrt[3]{x}}\,dx = \frac{3}{4}x^{\frac{3}{2}}\left(2\ln x - 3\right) + C$$



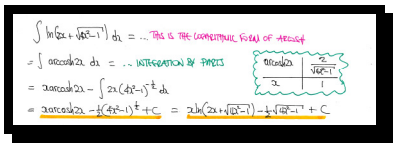
747. $$\int 4x\sqrt{x^4+1}\,dx = \ln\left[x^2+\sqrt{x^4+1}\right] + x^2\sqrt{x^4+1} + C$$



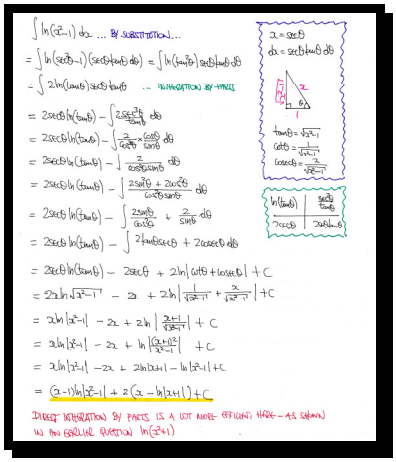
748. $$\int \frac{1}{x\left[1+3\sin^2\left(\ln x\right)\right]}\,dx=\frac{1}{2}\arctan\left[2\tan\left(\ln x\right)\right]+C$$



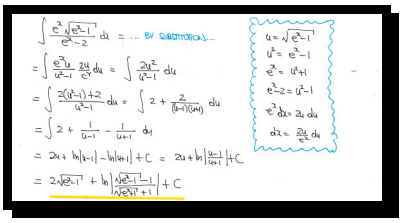
749. $$\int \ln\left[2x+\sqrt{4x^2-1}\right]dx=\begin{bmatrix} x\operatorname{arcosh}2x-\frac{1}{2}\sqrt{4x^2-1}+C \\ x\ln\left[2x+\sqrt{4x^2-1}\right]-\frac{1}{2}\sqrt{4x^2-1}+C \end{bmatrix}$$



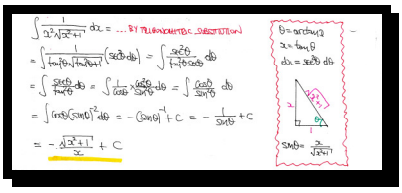
750. $$\int \ln\left(x^2-1\right)\,dx=(x-1)\ln\left|x^2-1\right|+2\left[x-\ln\left|x+1\right|\right]\,+\,C$$



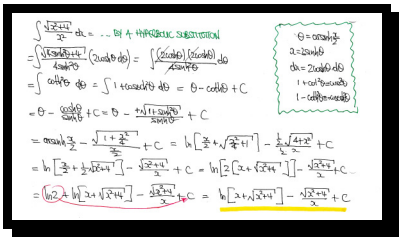
751. $$\int \frac{\mathrm{e}^x\sqrt{\mathrm{e}^x-1}}{\mathrm{e}^x-2}\,dx=2\sqrt{\mathrm{e}^x-1}+\ln\left|\frac{\sqrt{\mathrm{e}^x-1}-1}{\sqrt{\mathrm{e}^x-1}+1}\right|\,+\,C$$



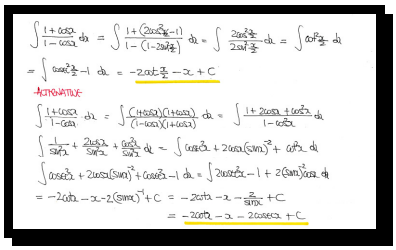
752. $$\int \frac{1}{x^2\sqrt{x^2+1}}\,dx=-\frac{\sqrt{x^2+1}}{x}\,+\,C$$



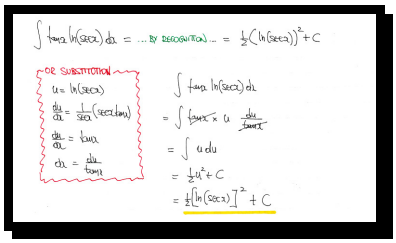
753. $$\int \frac{\sqrt{x^2+4}}{x^2}\,dx = \ln\left[x+\sqrt{x^2+4}\right]-\frac{\sqrt{x^2+4}}{x}\ +\ C$$



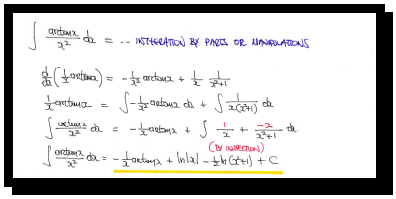
754. $$\int \frac{1+\cos x}{1-\cos x}\,dx = \begin{cases} -x-2\cot\left(\frac{1}{2}x\right)\ +\ C \\ -x-2\cot x-\operatorname{cosec} x\ +\ C \end{cases}$$



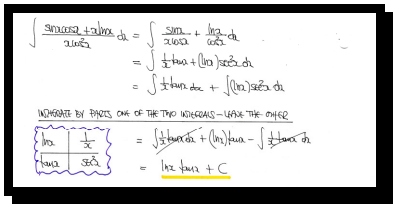
755. $$\int \tan x\,\ln(\sec x)\,dx = \frac{1}{2}\left[\ln(\sec x)\right]^2\ +\ C$$



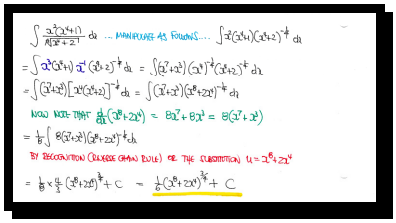
756. $$\int \frac{\arctan x}{x^2}\,dx = -\frac{\arctan x}{x} + \ln|x| - \frac{1}{2}\ln\left(x^2+1\right) + C$$



757. $$\int \frac{\sin x\cos x + x\ln x}{x\cos^2 x}\,dx = (\ln x)(\tan x) + C$$



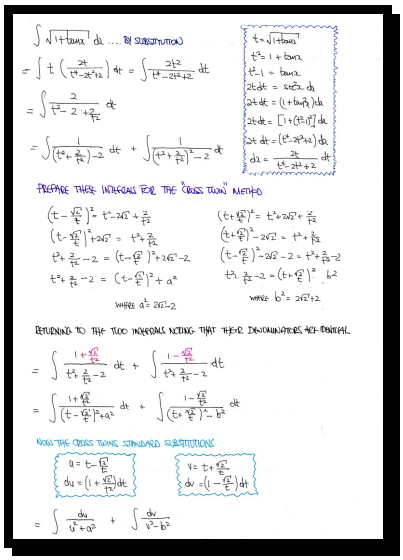
758. $$\int \frac{x^2\left(x^4+1\right)}{\sqrt[4]{x^4+2}}\,dx = \frac{1}{6}\left(x^8+2x^4\right)^{\frac{3}{4}} + C$$

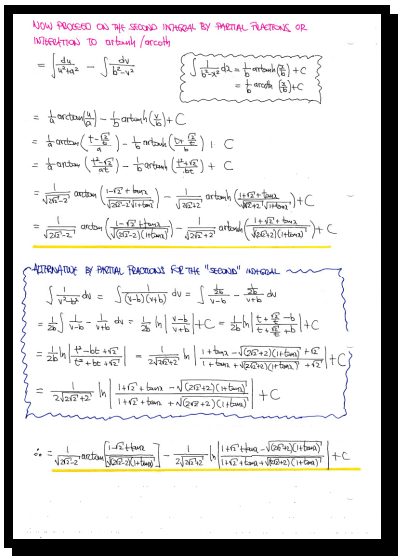


759. $\displaystyle\int \sqrt{1+\tan x}\ dx =$

$$\left[\frac{1}{\sqrt{2\sqrt{2}-2}}\arctan\left[\frac{1-\sqrt{2}+\tan x}{\sqrt{\left(2\sqrt{2}-2\right)\left(1+\tan x\right)}}\right]-\frac{1}{\sqrt{2\sqrt{2}-2}}\operatorname{artanh}\left[\frac{1+\sqrt{2}+\tan x}{\sqrt{\left(2\sqrt{2}+2\right)\left(1+\tan x\right)}}\right]\right]+C$$

$$\left[\frac{1}{\sqrt{2\sqrt{2}-2}}\arctan\left[\frac{1-\sqrt{2}+\tan x}{\sqrt{\left(2\sqrt{2}-2\right)\left(1+\tan x\right)}}\right]-\frac{1}{\sqrt{2\sqrt{2}-2}}\ln\left[\frac{1+\sqrt{2}+\tan x-\sqrt{\left(2\sqrt{2}+2\right)\left(1+\tan x\right)}}{1+\sqrt{2}+\tan x+\sqrt{\left(2\sqrt{2}+2\right)\left(1+\tan x\right)}}\right]\right]+C$$





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