

SOLUCIONES A LAS INTEGRALES

1. $\frac{x^4}{4} + c$
2. $\frac{x^4}{12} + c$
3. $\frac{x^5}{30} + c$
4. $\frac{x^4}{4} + 3x + c$
5. $\frac{x^3}{3} + x^2 - \ln|x| + c$
6. $\frac{x^3}{3} + \frac{x^2}{2} + \ln|x| + c$
7. $-\frac{1}{x} + c$
8. $-\frac{1}{4x^4} + c$
9. $-\frac{1}{x} + \frac{1}{2x^4} - \frac{3}{5x^5} + c$
10. $\sqrt[3]{x^4} + c$
11. $\frac{4\sqrt[4]{x^3}}{3} + c$
12. $2\sqrt[3]{x^4} + 2\sqrt{x^3} + c$
13. $\frac{6}{11}\sqrt[6]{x^{11}} + \frac{3}{4}\sqrt[3]{x^4} + c$
14. $\frac{x^3}{3} + 2\cos x + 8\operatorname{sen} x + c$
15. $e^x + \ln|x| + c$
16. $\frac{-2}{\sqrt{x}} + c$
17. $x + \ln|x| - \frac{3}{x} - \frac{3}{2x^2} + c$
18. $\operatorname{tg} x + \operatorname{sen} x + \frac{x^2}{2} + c$
19. $\operatorname{tg} x - x + c$
20. $\frac{2\sqrt{x^3}}{3} + 2\sqrt{x} + c$
21. $-\operatorname{cotg} x - \operatorname{tg} x + c$
22. $e^x + \ln|x| + c$
23. $\frac{15^x}{\ln 15} + c$
24. $\operatorname{arcsen} x - 3\operatorname{arctg} x + c$
25. $\operatorname{tg} x - \operatorname{cotg} x + c$
26. $-2\operatorname{cotg} x + \cos x + c$
27. $\frac{1}{3}\ln|3x + 2| + c$
28. $-\ln|3 - x| + c$
29. $\frac{1}{2}\ln|2 + x^2| + c$
30. $\frac{-1}{(x+1)^2} + c$
31. $\frac{1}{3}\ln|1+x^3| + c$
32. $\ln|3 + \operatorname{sen}^2 x| + c$
33. $\sqrt{x^2 - 6x + 1} + c$
34. $\frac{2\sqrt{(2+e^x)^3}}{3} + c$
35. $\frac{\ln^2 x}{2} + c$
36. $\frac{2\sqrt{(x^3+1)^3}}{9} + c$
37. $-\frac{1}{5}\cos 5x + c$
38. $3\operatorname{sen} x^2 + c$
39. $\operatorname{arctg}(\operatorname{sen} x) + c$
40. $\operatorname{arc} \operatorname{sen}(\operatorname{tg} x) + c$
41. $\frac{e^{x^5}}{5} + c$
42. $\operatorname{arc} \operatorname{tg} x^4 + c$

43. $\frac{2^x}{\ln 2} + c$
44. $\frac{1}{3} \operatorname{arc} \operatorname{tg} \frac{x}{3} + c$
45. $\frac{e^{7x}}{7} + c$
46. $e^x - e^{-x} + c$
47. $2e^{\sqrt{x}} + c$
48. $-e^{-\operatorname{sen} x} + c$
49. $\operatorname{arc} \operatorname{sen} \left(\frac{x}{5} \right) + c$
50. $\frac{1}{3\sqrt{2}} \operatorname{arc} \operatorname{tg} \left(\frac{\sqrt{2} x}{3} \right) + c$
51. $\frac{(2x+5)^{10}}{20} + c$
52. $\frac{(\operatorname{arc} \operatorname{tg} x)^4}{4} + c$
53. $\frac{\operatorname{sen}^6 x}{6} + c$
54. $3 \sqrt[3]{\operatorname{sen} x} + c$
55. $\ln |\ln|x|| + c$
56. $2 \operatorname{sen} \sqrt{x} + c$
57. $\frac{e^{2x}}{2} + 2x - \frac{e^{-2x}}{2} + c$
58. $\frac{(\operatorname{arc} \operatorname{cos} x)^2}{2} + c$
59. $\ln |5 + x \ln x| + c$
60. $\frac{\operatorname{tg}^3 x}{3} + \frac{\operatorname{tg}^2 x}{2} + c$
61. $\frac{-2 \sqrt{(\operatorname{cos} x)^3}}{3} + c$
62. $e^{e^x} + c$
63. $\operatorname{sen} e^x + c$
64. $\operatorname{arc} \operatorname{tg} (x+1) + c$
65. $-2 \sqrt{\operatorname{cos} x} + \frac{2 \sqrt{(\operatorname{cos} x)^5}}{5} + c$
66. $-\operatorname{cos} (\ln x) + c$
67. $\frac{1}{3\sqrt{2}} \operatorname{arc} \operatorname{tg} \left(\frac{x^3}{\sqrt{2}} \right) + c$
68. $\operatorname{arc} \operatorname{sen} (\ln x) + c$
69. $\frac{4 \sqrt{(3+\sqrt{x})^3}}{3} + c$
70. $-\frac{1}{2 \operatorname{sen}^2 x} - \ln |\operatorname{sen} x| + c$
71. $-\frac{1}{4} e^{-x^4} + c$
72. $-\frac{1}{e^x - 1} + c$
73. $\frac{1}{2} \operatorname{arc} \operatorname{sen} x^2 + c$
74. $\frac{1}{3} \sqrt{(1+x^2)^3} + c$
75. $-\frac{\ln^2 (\operatorname{cos} x)}{2} + c$
76. $\frac{\ln^2 (\ln x)}{2} + c$
77. $\frac{1}{2} e^{2 \operatorname{tg} x} + c$
78. $\frac{1}{\operatorname{cos} x} + c$
79. $-\sqrt{2 - \operatorname{cos} 2x} + c$
80. $-\frac{\operatorname{cos}^3 x}{3} + \frac{\operatorname{cos}^5 x}{5} + c$
81. $e^{-\operatorname{sen} x} + c$
82. $-x \operatorname{cos} x + \operatorname{sen} x + c$
83. $\frac{x \operatorname{sen} 3x}{3} + \frac{\operatorname{cos} 3x}{9} + c$
84. $\frac{x^3 \ln x}{3} - \frac{x^3}{9} + c$
85. $x^3 e^x - 3x^2 e^x + 6x e^x + 6 e^x + c$
86. $\frac{x^2 e^{3x}}{3} - \frac{2}{9} x e^{3x} + \frac{2}{27} e^{3x} + c$

87. $x e^x - e^x + c$

89. $\frac{x \sqrt{(1+2x)^3}}{3} - \frac{1}{15} \sqrt{(1+2x)^5} + c$

91. $-x^2 \cos x + 2x \operatorname{sen} x + 2 \cos x + c$

93. $2\sqrt{x} e^{\sqrt{x}} - 2e^{\sqrt{x}} + c$

95. $x \operatorname{arc} \operatorname{tg} x - \frac{1}{2} \ln |1+x^2| + c$

97. $2x \sqrt{1+x} - \frac{4 \sqrt{(1+x)^3}}{3} + c$

99. $2x \operatorname{tg} x + 2 \ln |\cos x| + c$

101. $-e^{-x} (x^2 - x) - e^{-x} (2x - 1) - 2e^{-x} + c$

103. $x \ln x - x + c$

105. $\frac{e^x \operatorname{sen} x - e^x \cos x}{2} + c$

107. $x \operatorname{tg} x + \ln |\cos x| + c$

109. $-\frac{\ln x}{2x^2} - \frac{1}{4x^2} + c$

111. $\frac{e^{-3x} \operatorname{sen} x}{10} - \frac{3e^{-3x} \cos x}{10} + c$

113. $\frac{x^4}{4} \ln |x| - \frac{x^4}{16} + c$

115. $-2x \sqrt{1-x} - \frac{4\sqrt{(1-x)^3}}{3} + c$

117. $x \ln \left| x + \sqrt{1+x^2} \right| - \sqrt{1+x^2} + c$

119. $\frac{x^2}{2} \operatorname{arcsen} x^2 + \frac{1}{2} \sqrt{1-x^4} + c$

$$\frac{2}{3} \sqrt{x^3} (\ln x)^2 - \frac{8}{9} \sqrt{x^3} (\ln x) + \frac{16}{27} \sqrt{x^3} + c$$

121. $2x - 7 \ln |x+2| + c$

123. $\frac{4}{5} \ln |x+3| + \frac{1}{5} \ln |x-2| + c$

125. $\ln |x| + \ln |x-1| - \frac{2}{x-1} + c$

127. $x + \ln |x-2| - 2 \ln |x+3| + c$

88. $x \operatorname{arc} \operatorname{sen} x + \sqrt{1-x^2} + c$

90. $\frac{x^2 \operatorname{arc} \operatorname{tg} x}{2} - \frac{x}{2} + \frac{\operatorname{arc} \operatorname{tg} x}{2} + c$

92. $x (\ln x)^2 - 2x \ln x + 2x + c$

94. $\frac{2 \sqrt{x^3} \ln x}{3} - \frac{4 \sqrt{x^3}}{9} + c$

96. $x^2 \operatorname{sen} x + 2x \cos x - 2 \operatorname{sen} x + c$

98. $\frac{x \operatorname{sen}(\ln x) - x \cos(\ln x)}{2} + c$

100. $2\sqrt{x} \ln x - 4\sqrt{x} + c$

102. $x^2 \frac{e^{x^2}}{2} - \frac{e^{x^2}}{2} + c$

104. $\frac{e^x \cos x + e^x \operatorname{sen} x}{2} + c$

106. $-\frac{x e^{-3x}}{3} - \frac{e^{-3x}}{9} + c$

108. $x \operatorname{sen} x + \cos x + c$

110. $-x^2 \cos x + 2x \operatorname{sen} x + 2 \cos x + c$

112. $\frac{x^2}{2} (\ln x)^2 - \frac{x^2}{2} \ln x + \frac{x^2}{4} + c$

114. $\ln |x| \cdot \ln (\ln |x|) - \ln |x| + c$

116. $-(x-3) \cos x + \operatorname{sen} x + c$

118. $-\sqrt{1-x^2} \operatorname{arcsen} x + x + c$

120.

122. $\frac{1}{4} \ln \left| \frac{x-2}{x+2} \right| + c$

124. $2 \ln |x+2| - 2 \ln |x+3| + c$

126. $\frac{1}{2} \ln |x| - \frac{1}{2} \ln |x+2| + c$

128. $\frac{x^2}{2} - x - \ln |x| + 2 \ln |x+1| + c$

129. $x - \ln |x+1| + \ln |x-1| + c$
130. $\ln \left| \frac{x+1}{x} \right| - \frac{1}{x} + c$
131. $\frac{1}{6} \ln \left| \frac{x-3}{x+3} \right| + c$
132. $\frac{1}{4} \ln \left| \frac{x+1}{x-1} \right| - \frac{1/2}{x-1} + c$
133. $-3 \ln |x| + 2 \ln |x-1| + \ln |x+2| + c$
134. $\ln |x| - \frac{1}{x-1} + c$
135. $x^2 - \ln |x+1| + c$
136. $\ln |x+1| + \ln |x-2| + \frac{2}{x-2} + c$
137. $\frac{1}{2} \ln |x+3| + \frac{3}{2} \ln |x-1| + c$
138. $\ln |x+1| - \frac{3}{x-2} - 2 \ln |x+2| + c$
139. $-\ln |x| - \frac{1}{x} + \ln |x+1| + c$
140. $-\frac{7}{3(x-2)} - \frac{2}{3(x+1)} + c$
141. $\frac{x^3}{3} + \frac{x^2}{2} + 4x + \ln \left| \frac{x^2(x-2)^5}{(x+2)^3} \right| + c$
142. $x - 2 \operatorname{arctg} x + c$
143. $2 \ln \left| \frac{x-2}{x} \right| + \frac{3}{x-2} + c$
144. $-3 \ln |x-1| + \frac{2}{x-1} + 3 \ln |x-2| + c$
145. $\ln |x| - \frac{1}{2} \ln |x^2+x+1| - \frac{\sqrt{3}}{3} \operatorname{arctg} \left(\frac{2x+1}{\sqrt{3}} \right) + c$
146. $\frac{1}{2} \operatorname{arctg} \left(\frac{x}{2} \right) + c$
147. $\frac{1}{2} \operatorname{arctg} \left(\frac{x-1}{2} \right) + c$
148. $\ln \left| \frac{x-1}{\sqrt{x^2+x+1}} \right| - \sqrt{3} \operatorname{arctg} \left(\frac{2x+1}{\sqrt{3}} \right) + c$
149. $\ln |x| + 2 \ln |x^2-6x+25| + 4 \operatorname{arctg} \frac{x-3}{4} + c$
150. $\frac{1}{x-1} + \operatorname{arctg} x + c$
151. $\frac{x^4}{4} + x^3 + x^2 - 3x + c$
152. $e^x + 3x + c$
153. $-e^{-x} + \frac{3 \sqrt[3]{x^4}}{4} - \frac{3 \sqrt[3]{(2x)^2}}{4} - \frac{1}{x} + c$
154. $x^2 e^x - 2x e^x + 2 e^x + c$
155. $\frac{-1}{9(3x+1)^3} + c$
156. $\ln \left| 5 + 3x + \frac{2}{3}x^3 \right| + c$
157. $\frac{-1}{2(x^2+x)^2} + c$
158. $x \operatorname{tg} x + \ln |\cos x| + c$
159. $5 \operatorname{arctg} e^x + c$
160. $\frac{1}{2} \operatorname{tg} x^2 + c$
161. $\frac{1}{2} \left(x - \frac{\operatorname{sen} 2x}{2} \right) + c$
162. $\operatorname{tg} x - x + c$
163. $2x + \operatorname{tg} x + c$
164. $\operatorname{arcsen} x - \sqrt{1-x^2} + c$
165. $\frac{\sqrt{(2+x^2)^3}}{3} + c$
166. $10 \sqrt{1 + \operatorname{sen} x} + c$
167. $\frac{e^{2x}}{2} + x - e^{-x} + c$
168. $\operatorname{arc} \operatorname{sen} \left(\frac{x}{3} \right) + c$

169. $3x^2 \sqrt{x^2+1} - 2\sqrt{(x^2+1)^3} + c$

171. $-\frac{\ln x}{x} - \frac{1}{x} + c$

173. $-\frac{1}{2} e^{-2x-1} + c$

175. $\frac{1}{3} \ln|x^3+4| + c$

177. $\frac{1}{2} e^{-5x^2} + c$

179. $-\ln|\cos x| + c$

181. $\frac{1}{2} \operatorname{arctg}(x^2+3) + c$

183. $\frac{x^2}{2} - \frac{e^x \cos x + e^x \operatorname{sen} x}{2} + c$

185. $e^{\operatorname{sen} x} + c$

187. $\frac{1}{2} \operatorname{sen}(1+x^2) + c$

189. $2 \ln|x-3| - \ln|x+3| + c$

191. $\frac{2\sqrt[6]{x^9}}{3} + \frac{3\sqrt[3]{x^4}}{4} + \frac{6\sqrt[6]{x^7}}{7} + c$

193. $x - \sqrt{x} - 2 \ln|\sqrt{x}+1| + c$

195. $e^{\operatorname{tg} x} + c$

197. $\frac{2x^3}{3} - \frac{x^2}{2} + 4x - 3 \ln|x+1| + c$

199. $\frac{-1}{2 \operatorname{sen}^2 x} + c$

170. $\left(\frac{5}{3}\right)^x \cdot \frac{1}{\ln(5/3)} + c$

172. $-2 \operatorname{cotg}(x^3) + \operatorname{tg}(4x) + c$

174. $\frac{1}{2} \operatorname{arctg}\left(\frac{x}{2}\right) + c$

176. $\frac{1}{3} \operatorname{arctg}(e^{3x}) + c$

178. $\frac{\operatorname{tg}^2 x}{2} + c$

180. $\frac{\operatorname{sen} 5x}{5} + \frac{3 \cos 2x}{2} + c$

182. $\frac{\ln^2|x|}{2} + c$

184. $\frac{2}{1-\operatorname{tg}(x/2)} + c$

186. $\frac{\operatorname{sen}^4 x}{4} - \frac{\operatorname{sen}^6 x}{6} + c$

188. $2 \ln|1+\sqrt{x}| + c$

190. $5 \ln|2+e^x| + c$

192. $\operatorname{tg}(x) + c$

194. $\frac{\operatorname{tg}^4 x}{4} + c$

196. $\frac{1}{5} \ln|9+5x^2| + c$

198. $\ln|\operatorname{sen} x| - 2 \ln|\cos x| + c$

200. $\operatorname{arcsen}(x^2) + c$