

**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.  $\operatorname{arc} \operatorname{sen} \left( \frac{x}{3} \right) + c$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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