

$$15. D\sqrt[3]{x + \sqrt{x}} = \frac{1 + 2\sqrt{x}}{6\sqrt{x}\sqrt[3]{(x + \sqrt{x})^2}}.$$

$$17. D\operatorname{sen}3x = 3\cos3x.$$

$$19. D3\operatorname{sen}(3x + 5) = 9\cos(3x + 5).$$

$$21. D\operatorname{sen}\frac{1}{x} = -\frac{\cos\frac{1}{x}}{x^2}.$$

$$23. Da\operatorname{ctg}\frac{x}{a} = -\frac{1}{\operatorname{sen}^2\frac{x}{a}}.$$

$$25. D\cos^3 4x = -12\cos^2 4x\operatorname{sen}4x.$$

$$27. D\operatorname{ctg}^2 5x = -10\operatorname{ctg}5x \cdot \operatorname{cosec}^2 5x.$$

$$29. D\frac{1}{\operatorname{tg}^2 2x} = -\frac{4}{\operatorname{tg}2x \cdot \operatorname{sen}^2 2x}.$$

$$31. D\operatorname{sen}^2 x \cdot \operatorname{sen}x^2 = 2\operatorname{sen}x(x\operatorname{sen}x\cos x^2 + \cos x\operatorname{sen}x^2).$$

$$32. D\frac{\operatorname{sen}x}{2\operatorname{sen}^2 x\cos x} = -\frac{2(2\cos^2 x - 1)}{\operatorname{sen}^2 2x}.$$

$$34. D\left[a\left(1 - \cos^2\frac{x}{2}\right)^2\right] = 2a\operatorname{sen}^3\frac{x}{2}\cos\frac{x}{2}.$$

$$36. D\frac{1}{\cos(x - \cos x)} = \frac{\operatorname{sen}(x - \cos x)(1 + \operatorname{sen}x)}{\cos^2(x - \cos x)}.$$

$$37. D\operatorname{sen}(x^2 + x)^5 = 5(x^2 + x)^4(2x + 1)\cos(x^2 + x)^5.$$

$$38. D\cos(x^3 - 1)^7 = -21x^2(x^3 - 1)^6\operatorname{sen}(x^3 - 1)^7.$$

$$39. D(1 + \operatorname{sen}^2 x)^4 = 4(1 + \operatorname{sen}^2 x)^3\operatorname{sen}2x.$$

$$41. D\sqrt{1 + 2\operatorname{tg}x} = \frac{1}{\cos^2 x\sqrt{1 + 2\operatorname{tg}x}}.$$

$$43. D\operatorname{sen}\sqrt{1 + x^2} = \frac{x\cos\sqrt{1 + x^2}}{\sqrt{1 + x^2}}.$$

$$45. D\sqrt{\frac{1 + \operatorname{sen}x}{1 - \operatorname{sen}x}} = \frac{1}{1 - \operatorname{sen}x}.$$

$$47. D\sqrt[5]{\operatorname{sen}3x} = \frac{3\cos3x}{5\sqrt[5]{\operatorname{sen}^4 3x}}.$$

$$49. D\frac{2\cos x}{\sqrt{\cos 2x}} = \frac{2\operatorname{sen}x}{\cos 2x\sqrt{\cos 2x}}.$$

$$51. D\ln(2x + 7) = \frac{2}{2x + 7}.$$

$$16. D\frac{1}{\sqrt{1 - x^4 - x^8}} = \frac{2x^3 + 4x^7}{\sqrt{(1 - x^4 - x^8)^3}}.$$

$$18. Da\cos\frac{x}{3} = -\frac{a}{3}\operatorname{sen}\frac{x}{3}.$$

$$20. D\cos(ax + b) = -a\operatorname{sen}(ax + b).$$

$$22. D\operatorname{tg}\frac{x + 1}{2} = \frac{1}{2\cos^2\frac{x + 1}{2}}.$$

$$24. D[\operatorname{sen}x \cdot \operatorname{sen}(x + a)] = \operatorname{sen}(2x + a).$$

$$26. D\operatorname{tg}^2 5x = 10\operatorname{tg}5x \cdot \operatorname{sec}^2 5x.$$

$$28. Da\operatorname{sen}^3\frac{x}{3} = a\operatorname{sen}^2\frac{x}{3}\cos\frac{x}{3}.$$

$$30. D\left(-\frac{2}{3} - \frac{\operatorname{sen}^2 x}{3}\right)\cos x = \operatorname{sen}^3 x.$$

$$33. D\frac{\operatorname{tg}2x}{\operatorname{tg}x} = \frac{2\operatorname{sen}2x}{\cos^2 2x}.$$

$$35. D\left(\frac{x}{2} - \frac{1}{4}\operatorname{sen}2x\right) = \operatorname{sen}^2 x.$$

$$40. D\operatorname{sen}(\cos x) = -\operatorname{sen}x \cdot \cos(\cos x).$$

$$42. D\sqrt{\operatorname{tg}\frac{x}{2}} = \frac{1}{4\cos^2\frac{x}{2}\sqrt{\operatorname{tg}\frac{x}{2}}}.$$

$$44. Da\sqrt{\cos 2x} = -\frac{a\operatorname{sen}2x}{\sqrt{\cos 2x}}.$$

$$46. D(\sqrt{\operatorname{ctg}x} - \sqrt{\operatorname{ctg}a}) = \frac{-1}{2\operatorname{sen}^2 x\sqrt{\operatorname{ctg}x}}.$$

$$48. D\cos x\sqrt{1 + \operatorname{sen}^2 x} = -\frac{2\operatorname{sen}^3 x}{\sqrt{1 + \operatorname{sen}^2 x}}.$$

$$50. D\ln(1 - 2x) = -\frac{2}{1 - 2x}.$$

$$52. D\ln(x^2 - 4x) = \frac{2x - 4}{x^2 - 4x}.$$

[Attenzione!]

53. $D \ln(1 - x^2) = -\frac{2x}{1 - x^2}$.
54. $D \log_3(x^2 - 1) = \frac{2x}{(x^2 - 1) \ln 3}$.
55. $D \ln(ax + b) = \frac{a}{ax + b}$.
56. $D \log_a(x^2 + 1) = \frac{2x}{(x^2 + 1) \ln a}$.
57. $D \ln \frac{1+x}{1-x} = \frac{2}{1-x^2}$.
58. $D \ln \frac{1+x^2}{1-x^2} = \frac{4x}{1-x^4}$.
59. $D \ln(x^2 + x) = \frac{2x+1}{x^2+x}$.
60. $D \ln(x^3 - 2x + 5) = \frac{3x^2 - 2}{x^3 - 2x + 5}$.
61. $D \frac{1}{3} \ln \frac{x^2 - 2x + 1}{x^2 + x + 1} = \frac{x+1}{x^3 - 1}$.
62. $D \left(\ln \frac{x}{x-1} - \frac{2}{x} - \frac{1}{x^2} \right) = \frac{x^2 - 2}{x^3(x-1)}$.
63. $D \ln(x + \sqrt{1+x^2}) = \frac{1}{\sqrt{1+x^2}}$.
64. $D[x - 2\sqrt{x} + 2\ln(1 + \sqrt{x})] = \frac{\sqrt{x}}{1 + \sqrt{x}}$.
65. $D \ln \sqrt{\frac{1+x}{1-x}} = \frac{1}{1-x^2}$.
66. $D \ln \frac{\sqrt{x^2+1} - x}{\sqrt{x^2+1} + x} = -\frac{2}{\sqrt{1+x^2}}$.
67. $D \ln(a + x + \sqrt{2ax + x^2}) = \frac{1}{\sqrt{2ax + x^2}}$.
68. $D[\ln^2 x - \ln(\ln x)] = \frac{2 \ln x}{x} - \frac{1}{x \ln x}$.
69. $D \left[\ln(x + \sqrt{x^2 + a^2}) - \frac{\sqrt{x^2 + a^2}}{x} \right] = \frac{\sqrt{x^2 + a^2}}{x^2}$.
70. $D \left(\sqrt{a^2 + x^2} - a \ln \frac{a + \sqrt{a^2 + x^2}}{x} \right) = \frac{\sqrt{a^2 + x^2}}{x}$.
71. $D \ln|\operatorname{sen} x| = \operatorname{ctg} x$.
72. $D \ln \operatorname{tg} x = \frac{2}{\operatorname{sen} 2x}$.
73. $D \ln|\operatorname{cos} x| = -\operatorname{tg} x$.
74. $D \ln \operatorname{sen}^2 x = 2 \operatorname{ctg} x$.
75. $D \operatorname{sen} \ln x = \frac{\operatorname{cos} \ln x}{x}$.
76. $D \operatorname{tg} \ln x = \frac{\operatorname{sec}^2 \ln x}{x}$.
77. $D \ln \operatorname{ctg} x = -\frac{2}{\operatorname{sen} 2x}$.
78. $D(\ln \operatorname{cos} x + x \operatorname{tg} x) = \frac{x}{\operatorname{cos}^2 x}$.
79. $D \ln(\operatorname{sen} x + \operatorname{cos} x) = \frac{\operatorname{cos} x - \operatorname{sen} x}{\operatorname{sen} x + \operatorname{cos} x}$.
80. $D \left(-\frac{1}{2 \operatorname{sen}^2 x} + \ln \operatorname{tg} x \right) = \frac{1}{\operatorname{sen}^3 x \operatorname{cos} x}$.
81. $D \left(\ln \operatorname{cos} x + \frac{1}{2 \operatorname{cos}^2 x} \right) = \operatorname{tg}^3 x$.
82. $D \ln \left| \operatorname{tg} \left(\frac{\pi}{4} + \frac{x}{2} \right) \right| = \frac{1}{\operatorname{cos} x}$.
83. $D \log_3(x^2 - \operatorname{sen} x) = \frac{2x - \operatorname{cos} x}{(x^2 - \operatorname{sen} x) \ln 3}$.
84. $D(\ln \operatorname{sen} x + \ln \operatorname{tg} x) = \operatorname{ctg} x(2 + \operatorname{tg}^2 x)$.
85. $D \left(\frac{1}{4} \operatorname{tg}^4 x - \frac{1}{2} \operatorname{tg}^2 x - \ln \operatorname{cos} x \right) = \operatorname{tg}^5 x$.
86. $D \ln^4 \operatorname{sen} x = 4 \ln^3 \operatorname{sen} x \cdot \operatorname{ctg} x$.
87. $D \ln \sqrt{\frac{1 + \operatorname{sen} x}{1 - \operatorname{sen} x}} = \frac{1}{\operatorname{cos} x}$.
88. $D \ln \operatorname{sen} \sqrt{x} = \frac{1}{2\sqrt{x}} \operatorname{ctg} \sqrt{x}$.
89. $D \ln \sqrt{\operatorname{sen} x} = \frac{1}{2} \operatorname{ctg} x$.
90. $D \left[-\frac{\operatorname{cos} x}{2 \operatorname{sen}^2 x} + \frac{1}{2} \ln \operatorname{tg} \frac{x}{2} \right] = \frac{1}{\operatorname{sen}^3 x}$.