

DERIVADAS

Funciones no compuestas:

1) $f(x) = 3x^3 + \frac{2}{3}x^2 - x + 3\sqrt[3]{x}$	2) $f(x) = \frac{x^4}{4} + \frac{3x^2}{2} - 2 - \frac{3}{x} + \frac{6}{x^3}$	3) $f(x) = x\sqrt{x} + \frac{1}{x^2\sqrt{x}} - \frac{3}{x^3\sqrt{x^2}}$
4) $f(x) = \frac{3x^2\sqrt[4]{x} - 2x\sqrt{x}}{5\sqrt[4]{x^3}}$	5) $f(x) = x^2 \operatorname{sen} x + \sqrt{x} \cos x$	6) $f(x) = x^3 \ln x - \frac{1}{\sqrt{x}} \operatorname{tg} x$
7) $f(x) = \frac{\operatorname{ctg} x}{\sqrt[3]{x^2}} - e^x$	8) $f(x) = e^x \operatorname{sen} x + e^x \cos x$	9) $f(x) = 4^x \operatorname{arcsen} x$
10) $f(x) = \sqrt{x} \operatorname{arctg} x$	11) $f(x) = \frac{5x-2}{4x^2-1}$	12) $f(x) = \frac{x+e^x}{x-e^x}$
13) $f(x) = \frac{x - \operatorname{arctg} x}{\operatorname{arcsen} x}$	14) $f(x) = \frac{\sqrt{x}}{1 - \operatorname{arctg} x}$	15) $f(x) = \frac{x + \ln x}{x^3}$
16) $f(x) = \frac{\operatorname{sen} x + \cos x}{\operatorname{sen} x - \cos x}$	17) $f(x) = \frac{\operatorname{tg} x - \operatorname{ctg} x}{x \operatorname{sen} x}$	18) $f(x) = \frac{1}{x} + 2 \ln x - \frac{\ln x}{x}$
19) $f(x) = x e^x \operatorname{sen} x$	20) $f(x) = \frac{x^3 \operatorname{sen} x}{\ln x}$	21) $f(x) = \sqrt{x} e^x$

1. $y = 5x^6 - 3x^5 + 3x^3 - 2$

3. $y = 3x^{10} + 2\sqrt{x} + \frac{3}{x}$

5. $y = 4 \operatorname{sen} x - 3 \cos x$

7. $y = 4x^3 + 2x^3 - x^3 + 4$

9. $y = \cos(3x)$

11. $y = \operatorname{sen}(3x^2 - 2x)$

13. $y = \operatorname{sen}^3(2x^2)$

15. $y = 3 \operatorname{sen}^2(2x - 3)$

17. $y = \cos(\operatorname{sen} x)$

19. $y = \sqrt[3]{\cos^2 x}$

21. $y = \sqrt{x^2 - 3x}$

23. $y = (2\sqrt{x} - 3x)^3$

25. $y = \sqrt[5]{\operatorname{sen}(3x)}$

27. $y = (3x^2 - \sqrt{1-x^2})^3$

29. $y = \sqrt{\operatorname{sen}^3 x + (x-1)^3}$

31. $y = \frac{x}{5}$

33. $y = \frac{x^4 - 3x}{4}$

35. $y = \frac{(x^4 - 3x)^2}{3}$

37. $y = \frac{x^2}{x^2 - 1}$

39. $y = \sqrt{\frac{3}{x}}$

41. $y = \sqrt[3]{3x^2 - \operatorname{sen} x}$

43. $y = \ln(x^2 - 3x)$

2. $y = x^{-4} + 2x^{-3} + x - 4$

4. $y = \sqrt{3} \cdot x^3 - \pi \cdot x + \sqrt{3}$

6. $y = 2\sqrt{x} + \frac{2}{x} + x^5$

8. $y = \frac{\pi}{2} \cdot \cos x - 3\sqrt{x}$

10. $y = \cos^2(x^3)$

12. $y = \cos(x^2)$

14. $y = \cos^4(3x^4)$

16. $y = \cos^5(3x^2)$

18. $y = \cos^2(\operatorname{sen}(3x))$

20. $y = \sqrt[3]{\cos^2(x^2)}$

22. $y = \sqrt[3]{(x^2 - 3x)^2}$

24. $y = \sqrt[3]{\operatorname{sen}^2 x}$

26. $y = \sqrt{3x - \operatorname{sen} x}$

28. $y = \operatorname{sen}(\sqrt{3x^2 - 5x})$

30. $y = \cos^3(x^2 - 3\sqrt{x})$

32. $y = \frac{5}{x}$

34. $y = \frac{x^3 - 3}{x}$

36. $y = \frac{(x-1)^3}{3x}$

38. $y = \frac{\sqrt{3x}}{x}$

40. $y = \frac{x}{\sqrt{3x}}$

42. $y = \ln(3x - 1)$

44. $y = \ln \sqrt{x - 2}$

$$45. y = \log_2 (3x^2)$$

$$47. y = 2^x$$

$$49. y = 3^{\sin x}$$

$$51. y = 3e^{x^2-3x}$$

$$53. y = 3 \operatorname{tg}^2 x$$

$$55. y = x^2 \cdot \ln x$$

$$57. y = x^4 \cdot e^{3x}$$

$$59. y = \ln x^2 \cdot e^{\sin x}$$

$$61. y = \left(\frac{x^2-3}{x^2+1} \right)^3$$

$$63. y = (\cos^2 3x - \sin^3 x) \cdot e^{x^3}$$

$$65. y = \frac{\ln x}{3^x}$$

$$67. y = \ln \left(\frac{\sin x}{e^x} \right)$$

$$69. y = \frac{3x^4 - 2x^2 + 3x - 2}{2x - 1}$$

$$71. y = \operatorname{arctg} (x^2)$$

$$73. y = \ln(\sec x)$$

$$75. y = \arcsin x \cdot e^{\cos x}$$

$$77. y = \ln \left(\frac{\operatorname{tg} x}{e^{3x^2}} \right)$$

$$79. y = \ln(\operatorname{arctg}(5x))$$

$$81. y = 5 \operatorname{arctg}^2(\sin x)$$

$$83. y = \frac{\arcsin(3x-2)}{x^2}$$

$$85. y = x^{\sin x}$$

$$87. y = (\cos x)^{x^3-x}$$

$$89. y = \ln \left(\frac{x+2}{x^2} \right)^3$$

$$91. y = 10^{\left(\frac{\sin x - e^x}{3x - \cos x} \right)}$$

$$93. y = \frac{x^{\cos x}}{(\ln x)^3}$$

$$95. y = \sqrt[3]{\frac{\sin^2(e^x)}{\operatorname{arctg}(\cos x)}}$$

$$97. y = \frac{\sqrt{\cos(e^x) \cdot x}}{\sqrt{e^{\operatorname{tg} x}}}$$

$$99. y = \sqrt{\frac{\operatorname{arctg} e^x \cdot \cos x}{\ln(x^2 - x)}}$$

$$46. y = e^{x^2}$$

$$48. y = e^{x^2-2x}$$

$$50. y = \operatorname{tg}(x^3)$$

$$52. y = \sqrt{e^{\cos x}}$$

$$54. y = (x^2-1) \cdot (x-1)$$

$$56. y = e^{x^2} \cdot \cos x$$

$$58. y = e^{x^4-3x^2} \cdot \sin x$$

$$60. y = \frac{1}{\ln \sqrt{x}}$$

$$62. y = \ln x \cdot e^{x^2-\sin x}$$

$$64. y = \left(\frac{\ln x^2}{x^3-2} \right)^2$$

$$66. y = \frac{e^x + \ln x}{x^2 - \sin x}$$

$$68. y = \sqrt{\frac{\sin x}{x-1}}$$

$$70. y = (\sin(e^{3x}))^2 \cdot \cos x$$

$$72. y = \arcsin x^3$$

$$74. y = \operatorname{arctg}(\ln x)$$

$$76. y = \operatorname{arctg}(e^{3x})$$

$$78. y = \arcsin \left(\frac{x+1}{e^x} \right)$$

$$80. y = \operatorname{arctg} \sqrt{x^3}$$

$$82. y = 3^{\operatorname{arctg}(x^2)}$$

$$84. y = \frac{\sin x - \operatorname{tg} x}{\sqrt{4x-3}}$$

$$86. y = (\sin x)^{x^2}$$

$$88. y = 4^{\operatorname{arctg}(\ln x)}$$

$$90. y = \left(\frac{e^{3x}}{\sin x} \right)^{x^2}$$

$$92. y = \cos \left(\frac{\operatorname{tg} \sqrt{x}}{\sin(\ln x)} \right)$$

$$94. y = \cos^2(4e^x) \cdot \ln \left(\frac{\operatorname{tg} x}{3^{x^2}} \right)$$

$$96. y = \sqrt{\frac{e^{\ln(\cos x)}}{5^{\cos x}}}$$

$$98. y = (\operatorname{tg}(e^x) + x^2)^x$$

$$100. y = \frac{\ln \sqrt{\cos x}}{\sin(e^{\cos x})}$$

DERIVADAS(II)

1) $y = \frac{x^2}{\sqrt{x}}$ 2) $y = \frac{\sqrt{x}}{x}$ 3) $y = \sqrt{\sqrt{\sqrt{x}}}$ 4) $y = \sqrt[3]{x} \cdot \sqrt[4]{x} \cdot \sqrt[6]{x}$ 5) $y = x^2 \cdot x^{-\frac{1}{3}}$ 6) $y = \frac{x}{\sqrt{x}}$ 7) $y = (3x^2 + 5x)^3$ 8) $y = \sqrt[3]{3x^2 + 5x - 2}$ 9) $y = \frac{1}{(2x+3)^5}$ 10) $y = \sqrt[4]{(x^3-1)^2}$ 11) $y = \frac{1}{\sqrt[5]{(x-2)^3}}$ 12) $y = \left(\frac{3x-1}{x^2-2}\right)^5$ 13) $y = \left(\frac{x+1}{x^3}\right)^{-2}$ 14) $y = [x^2 \cdot \ln(x+1)]^3$ 15) $y = \ln(x^2 - x + 1)$ 16) $y = \ln(\cos(3x+2))$ 17) $y = \ln \sqrt{3x}$ 18) $y = \ln 3$ 19) $y = \ln^2(x+3)$ 20) $y = \sqrt{\ln(3x)}$ 21) $y = \ln(\sen(x^2+1))$ 22) $y = \sen(\ln(x^2+1))$ 23) $y = \sen x^2$ 24) $y = \sen^2 x$ 25) $y = \cos^3(x^3+3x)$ 26) $y = \cos \sqrt[3]{(x-3)^2}$ 27) $y = \sen(2x+3)^5$	28) $y = \sen(\cos 3x)$ 29) $y = \sec(2x-1)$ 30) $y = \cos ec(x-3)^3$ 31) $y = \cot g \sqrt{x^5-3}$ 32) $y = tg(x-1)^2$ 33) $y = \sec \pi$ 34) $y = \ln^3(x^2+1)^2$ 35) $y = \ln(e^x)$ 36) $y = \ln(tg x^2)$ 37) $y = \ln \sqrt{\frac{3x+2}{3x-2}}$ 38) $y = e^{4x}$ 39) $y = e^{-x}$ 40) $y = e^{3-x^2}$ 41) $y = \frac{1}{e^{3x}}$ 42) $y = e^{e^{2x}}$ 43) $y = e^{x^2 \cdot \ln 3x}$ 44) $y = e^{\frac{x^2}{5x-3}}$ 45) $y = e^{\sqrt{\sen 4x}}$ 46) $y = e^2$ 47) $y = 2^{x^2+1}$ 48) $y = 2^{\cos 5x}$ 49) $y = 3^x \cdot 5^x$ 50) $y = 3^{\frac{x}{x+1}}$ 51) $y = tg(\ln(x^2+1))$ 52) $y = tg(e^{-4x})$ 53) $y = tg(5^x)$ 54) $y = \arcsen 2x$ 55) $y = \arccos \sqrt{x}$ 56) $y = \arcsen(x^2+1)$ 57) $y = \arccos(\cos x^3)$ 58) $y = \arctg(x+1)$ 59) $y = \arctg(\ln x^2)$	60) $y = \arctg(\ln \sqrt{x})$ 61) $y = \arctg(e^x)$ 62) $y = \ln \frac{1-e^x}{1+e^x}$ 63) $y = \ln \sqrt{\frac{1+\cos x}{1-\cos x}}$ 64) $y = e^{\sen^2 2x}$ 65) $y = \sqrt{\ln(\sen 2x)}$ 66) $y = 5x^3 + \sqrt[3]{(3x+1)^2}$ 67) $y = (x+1)(x-1)(x^2+1)$ 68) $y = \left(\frac{x^2 \cdot \ln x}{e^x}\right)^2$ 69) $y = \log_3 \sqrt{3x}$ 70) $y = \log_5 e^{2x}$
---	--	---

Funciones compuestas:

1) $y = (4x^3 + 6x - 2)^{17}$	2) $y = \sqrt{x^4 - 3x^2 + 6}$	3) $y = \frac{1}{\sqrt[3]{x^2 - 5}}$	4) $y = (\operatorname{sen} x - \cos x)^5$
5) $y = x(\operatorname{arctg} x)^3$	6) $y = (1 - x^2)^5 (\operatorname{arcsen} x)^3$	7) $y = \frac{1}{(2x+1)^3}$	8) $y = \operatorname{sen} 3x + \operatorname{sen}^2 3x$
9) $y = \cos^3 x - \cos(x^3)$	10) $y = \ln(\operatorname{sen} x)$	11) $y = \log(\operatorname{sen} \sqrt{x})$	12) $y = \frac{x + \cos \sqrt{x}}{x - \cos \sqrt{x}}$
13) $y = \operatorname{arcsen} \sqrt{1 - x^2}$	14) $y = \left(\frac{\operatorname{sen} 5x + \cos 5x}{\operatorname{sen} 5x - \cos 5x} \right)^3$	15) $y = \arccos \sqrt{1 - \frac{1}{x^2}}$	16) $y = \operatorname{arctg} \sqrt{\frac{1-x}{1+x}}$
17) $y = \operatorname{arcsen} \frac{x^2 - 1}{x^2}$	18) $y = \operatorname{arcsen}(1 - e^x)$	19) $y = \ln(e^x + \sqrt{e^{2x} - 1})$	20) $y = x^5 e^{\frac{1}{x^6}}$
21) $y = 8^{\operatorname{arcsen}(\frac{1}{x})}$	22) $y = \ln \sqrt{\frac{1 - \cos^2 x}{1 + \cos^2 x}}$	23) $y = \operatorname{arcsen}(1 - x) + \sqrt{2x - x^2}$	
24) $y = \sqrt{a^2 - x^2} + a \cdot \operatorname{arcsen}\left(\frac{x}{a}\right)$		25) $y = x\sqrt{a^2 - x^2} + a^2 \operatorname{arcsen}\left(\frac{x}{a}\right)$	
26) $y = \frac{\operatorname{arcsen} x}{\sqrt{1 - x^2}}$	27) $y = \frac{x}{2} \sqrt{x^2 - 4} - 2 \ln(x + \sqrt{x^2 - 4})$		28) $y = \ln(x + \sqrt{x^2 + 1})$
29) $y = \ln(\operatorname{arcsen} x) + \operatorname{arcsen}(\ln x)$		30) $y = \operatorname{arcsen} \frac{x}{\sqrt{1 + x^2}}$	31) $y = \ln\left(\ln\left(\ln \frac{1-x}{1+x}\right)\right)$
32) $y = \operatorname{sen}^2(\operatorname{sen}^2(\operatorname{sen}^2 x))$	33) $y = \cos\left(\frac{1}{\arccos(\operatorname{sen} x)}\right)$	34) $y = \sqrt{x + \sqrt{x + \sqrt{x}}}$	35) $y = \operatorname{arctg}(tg^2 x)$

Derivación logarítmica

1) $y = x^{3x}$	2) $y = x^{x^2}$	3) $y = \sqrt{x}^{\sqrt{x}}$
4) $y = \left(\frac{1}{x}\right)^{\frac{1}{\operatorname{sen} x}}$	5) $y = \sqrt[3]{\ln x}$	6) $y = \left(1 + \frac{1}{x}\right)^x$
7) $y = x^{x^x}$	8) $y = \sqrt[3]{x^2} (\operatorname{sen}^7 x) 5^{x^3}$	9) $y = \frac{(x+2)^9}{\sqrt{(x-3)^7 (x+8)^{11}}}$
10) $y = \frac{x^{\frac{1}{5}} \operatorname{sen}^3 x \ln x}{(\operatorname{arcsen} x)^3}$	11) $\frac{(1 - \cos x)^7 \operatorname{tg}^3 x}{\sqrt{x^2 + 1} \sqrt[3]{\operatorname{sen} x}}$	12) $x^4 \sqrt[5]{\frac{x^3}{x^2 + 3}}$