

EJERCICIOS DE DERIVADAS

1) $y = 7$

$$y' = 0$$

2) $y = 3x^3 + 5x - 2$

$$y' = 9x^2 + 5$$

3) $y = 5x^6 + 3x^4 + 2x^3 - 4x - 1$

$$y' = 30x^5 + 12x^3 + 6x^2 - 4$$

4) $y = -4x^5 + 2x^4 - 3x^2 + 4x$

$$y' = -20x^4 + 8x^3 - 6x + 4$$

5) $y = a$

$$y' = 0$$

6) $y = 3ax^3 + 2bx - c$

$$y' = 9ax^2 + 2b$$

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

$$y' = 28x^3 + 6x$$

8) $y = \frac{1}{4}x^4 + \frac{2}{3}x^3 + \frac{3}{2}x^2 + 4$

$$y' = x^3 + 2x^2 + 3x$$

9) $y = \frac{2}{3}x^5 - \frac{7}{4}x^2 + \frac{1}{5}x - 2$

$$y' = \frac{10}{3}x^4 - \frac{7}{2}x + \frac{1}{5}$$

10) $y = (x + 1)^4$

$$y' = 4(x + 1)^3$$

11) $y = (3x + 2)^5$

$$y' = 15(3x + 2)^4$$

12) $y = (x^2 + 1)^3$

$$y' = 6x(x^2 + 1)^2$$

13) $y = (3x^2 + 2)^3$

$$y' = 18x(3x^2 + 2)^2$$

14) $y = (6x^2 - 4x)^3$

$$y' = 3(12x - 4)(6x^2 - 4x)^2$$

15) $y = (x^4 - 7x)^5$

$$y' = 5(4x^3 - 7)(x^4 - 7x)^4$$

16) $y = (x^2 + x - 1)^3$

$$y' = 3(2x + 1)(x^2 + x - 1)^2$$

17) $y = (x^2 + 3x - 2)^5$

$$y' = 5(2x + 3)(x^2 + 3x - 2)^4$$

18) $y = e^{3x}$

$$y' = 3 \cdot e^{3x}$$

19) $y = e^{x^2+3}$

$$y' = 2x \cdot e^{x^2+3}$$

20) $y = e^{4x^3+5x-2}$

$$y' = (12x^2 + 5) \cdot e^{4x^3+5x-2}$$

21) $y = e^{5x^2+7x+5}$

$$y' = (10x + 7) \cdot e^{5x^2+7x+5}$$

22) $y = 2^{5x+1}$	$y' = 5 \cdot 2^{5x+1} \cdot \ln 2$
23) $y = 3^{x^2+1}$	$y' = 2x \cdot 3^{x^2+1} \cdot \ln 3$
24) $y = 7^{4x^3+2x^2-3x+1}$	$y' = (12x^2 + 4x - 3) \cdot 7^{4x^3+2x^2-3x+1} \cdot \ln 7$
25) $y = 6^{4x^2+5x-1}$	$y' = (8x + 5) \cdot 6^{4x^2+5x-1} \cdot \ln 6$
26) $y = \ln 4x$	$y' = \frac{1}{x}$
27) $y = \ln(3x - 2)$	$y' = \frac{3}{3x - 2}$
28) $y = \ln(5x^4 + 3x^2 - 4x + 1)$	$y' = \frac{20x^3 + 6x - 4}{5x^4 + 3x^2 - 4x + 1}$
29) $y = \ln(3x^2 + 4x - 1)$	$y' = \frac{6x + 4}{3x^2 + 4x - 1}$
30) $y = \lg_2(4x - 2)$	$y' = \frac{4}{4x - 2} \lg_2 e$
31) $y = \lg_3(x^2 + 5x)$	$y' = \frac{2x + 5}{x^2 + 5x} \lg_3 e$
32) $y = \lg_2(5x^3 + 4x^2 + 7x + 6)$	$y' = \frac{15x^2 + 8x + 7}{5x^3 + 4x^2 + 7x + 6} \lg_2 e$
33) $y = \sqrt{x + 5}$	$y' = \frac{1}{2\sqrt{x + 5}}$
34) $y = \sqrt{3x^2 + 5x - 1}$	$y' = \frac{6x + 5}{2\sqrt{3x^2 + 5x - 1}}$
35) $y = \sqrt{2x^3 + 8x^2 + 3x}$	$y' = \frac{6x^2 + 16x + 3}{2\sqrt{2x^3 + 8x^2 + 3x}}$
36) $y = \sqrt{x^2 + 5}$	$y' = \frac{x}{\sqrt{x^2 + 5}}$
37) $y = \sqrt{4x^2 + 3}$	$y' = \frac{4x}{\sqrt{4x^2 + 3}}$
38) $y = \sqrt{2x^2 + 4x - 2}$	$y' = \frac{2x + 2}{\sqrt{2x^2 + 4x - 2}}$
39) $y = \sqrt{3x^4 - 5x^2 + 8x - 1}$	$y' = \frac{6x^3 - 5x + 4}{\sqrt{3x^4 - 5x^2 + 8x - 1}}$
40) $y = \text{sen}(x + 5)$	$y' = \cos(x + 5)$
41) $y = \text{sen}(4x - 2)$	$y' = 4 \cdot \cos(4x - 2)$
42) $y = \cos(x^2 - 4)$	$y' = -2x \cdot \text{sen}(x^2 - 4)$
43) $y = \cos(3x^3 + 2x)$	$y' = -(9x^2 + 2) \text{sen}(3x^3 + 2x)$
44) $y = \text{sen}(5x^3 - 3x^2 + 4x)$	$y' = (15x^2 - 6x + 4) \cdot \cos(5x^3 - 3x^2 + 4x)$

$$45) y = \cos(3x^2 + 7x - 3)$$

$$y' = -(6x + 7) \cdot \text{sen}(3x^2 + 7x - 3)$$

$$46) y = \cos(e^{3x} + 2)$$

$$y' = -3 \cdot e^{3x} \cdot \text{sen}(e^{3x} + 2)$$

$$47) y = \frac{3x}{x+1}$$

$$y' = \frac{3}{(x+1)^2}$$

$$48) y = \frac{x+1}{x}$$

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

$$49) y = \frac{x-1}{x^2+1}$$

$$y' = \frac{-x^2 + 2x + 1}{(x^2 + 1)^2}$$

$$50) y = \frac{x+3}{x+2}$$

$$y' = \frac{-1}{(x+2)^2}$$

$$51) y = \frac{x^2+1}{x}$$

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

$$52) y = \frac{2x+3}{x^2-2}$$

$$y' = \frac{-2x^2 - 6x - 4}{(x^2 - 2)^2}$$

$$53) y = \frac{x^2-3}{x^3+x}$$

$$y' = \frac{-x^4 + 10x^2 + 3}{(x^3 + x)^2}$$

$$54) y = x \cdot e^x$$

$$y' = (1+x) \cdot e^x$$

$$55) y = x \cdot \ln x$$

$$y' = \ln x + 1$$

$$56) y = e^x \cdot \text{sen } x$$

$$y' = e^x \cdot (\text{sen } x + \cos x)$$

$$57) y = x^5 \cdot \ln x$$

$$y' = x^4 \cdot (5 \ln x + 1)$$

$$58) y = \frac{\ln x}{x}$$

$$y' = \frac{1 - \ln x}{x^2}$$

$$59) y = x \cdot \ln x - x$$

$$y' = \ln x$$

$$60) y = (x^2 + 1) \cdot e^{3x+2}$$

$$y' = (3x^2 + 2x + 3) \cdot e^{3x+2}$$