

## **EJERCICIOS DE DERIVADAS**

$$1^{\circ}) f(x) = \ln \frac{x}{\sqrt{x^2+9}} ; f'(x) = \frac{9}{x(x^2+9)}$$

$$2^{\circ}) f(x) = \sqrt{\operatorname{tg} x^2} ; f'(x) = \frac{x \cdot \sec^2 x^2}{\sqrt{\operatorname{tg} x^2}}$$

$$3^{\circ}) f(x) = \log \sqrt{\frac{1+x}{1-x}} ; f'(x) = \frac{\log e}{1-x^2}$$

$$4^{\circ}) f(x) = \sqrt[5]{\operatorname{sen}(x^2+2)} ; f'(x) = \frac{2x \cdot \cos(x^2+2)}{5 \sqrt[5]{\operatorname{sen}^4(x^2+2)}}$$

$$5^{\circ}) f(x) = \frac{e^{-x^2}}{x^2+1} ; f'(x) = \frac{-2x^3 e^{-x^2}}{(x^2+1)^2}$$

$$6^{\circ}) f(x) = \operatorname{sen}^4(2x^3+2x) ; f'(x) = 4(6x^2+2) \cdot \operatorname{sen}^3(2x^3+2x) \cdot \cos(2x^3+2x)$$

$$7^{\circ}) f(x) = e^{\sqrt{x^2+2}} ; f'(x) = \frac{x \cdot e^{\sqrt{x^2+2}}}{\sqrt{x^2+2}}$$

$$8^{\circ}) f(x) = \frac{x^3+3x-2}{x^2+2} ; f'(x) = \frac{x^4+3x^2+4x+6}{(x^2+2)^2}$$

$$9^{\circ}) f(x) = (x^3 - 2e^{2x}) \cdot \operatorname{sen}(3x^2 + 3e^{4x}) ; f'(x) = (3x^2 - 4e^{2x}) \operatorname{sen}(3x^2 + 3e^{4x}) + \\ + (x^3 - 2e^{2x})(6x + 12e^{4x}) \cos(3x^2 + 3e^{4x})$$

$$10^{\circ}) f(x) = 6^{(-3x^2+x-2)^{-2}} ; f'(x) = -2 \ln 6 (18x^3 - 9x^2 - 2) \cdot 6^{(-3x^2+x-2)^{-2}}$$

$$11^{\circ}) f(x) = \frac{2x+3}{\sqrt{x}} ; f'(x) = \frac{2x-3}{2x\sqrt{x}}$$

$$12^{\circ}) f(x) = \frac{x^2-4x}{(x-2)^2} ; f'(x) = \frac{8}{x-2}$$

$$13^{\circ}) f(x) = (2\sqrt{x}-3)^7 ; f'(x) = \frac{7}{\sqrt{x}} (2\sqrt{x}-3)^6$$