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**Biomatematicas**

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**Ejercicios de derivada**

**2° semestre**

$$1 \quad f(x) = 5 \quad f'(x) = 0$$

$$2 \quad f(x) = -2x \quad f'(x) = 0$$

$$3 \quad f(x) = -2x + 2 \quad f'(x) = -4x$$

$$4 \quad f(x) = 2x^4 + x^3 - x^2 + 4 = f'(x) = 8x^3 + 3x^2 - 2x$$

$$5 \quad f(x) = -2x^2 + 5 = f'(x) = -4x$$

$$6 \quad f(x) = \frac{x^3 + 2}{3} = \frac{x^3}{3} + \frac{2}{3} = f'(x) = \frac{1}{3} \frac{d}{dx} x^3 + \frac{d}{dx} \frac{2}{3}$$
$$\frac{1}{3} (3x^2) + 0 = \frac{3}{3} x^2$$

$$7 \quad f(x) = \frac{1}{3x^2} = -3x^{-2} - \frac{d}{dx} = -6x^{-3} = -6x^{-3} = -6 \frac{1}{x^3} =$$
$$-6 \cdot \frac{1}{x^3} = \frac{-6}{x^3}$$

$$8 \quad f(x) = \frac{x+1}{x-1} = \frac{(x-1) \frac{d}{dx} (x+1) - (x+1) \frac{d}{dx} (x-1)}{(x-1)^2} = \frac{(x-1)(1+0) - (x+1)(1-0)}{(x-1)^2}$$
$$= \frac{x-1-x-1}{(x-1)^2} = \frac{-2}{(x-1)^2} = f'(x) = \frac{-2}{(x-1)^2}$$

$$9 \quad f(x) = (5x^2 - 3) \cdot (x^2 + x + 4)$$
$$f'(x) = (10x) (x^2 + x + 4) + (5x^2 - 3) (2x + 1)$$
$$f'(x) = 10x^3 + 10x^2 + 46x + 10x^3 - 6x$$
$$f'(x) = 20x^3 + 10x^2 + 34x$$

