

Ejemplos

Halla las derivadas de las sig. funciones.

a) $(x+1)^8$

$$f(x) = (x+1)^8$$

$$f'(x) = 8(x+1)^7$$

b) $\cos(2x^2)$

$$f(x) = \cos(2x^2)$$

$$f'(x) = -\operatorname{sen}(2x^2) \cdot (4x)$$

$$f'(x) = -4x \operatorname{sen}(2x^2)$$

c) Sea f una función tal que $f'(0) = \frac{1}{1+0^3}$

Sea $g(x) = f(x^2)$. Halla lo $g'(x)$ y $g'(2)$. No intentar evaluar $f(0)$

$$g'(x) = (f(x^2))' = f'(u) \cdot u'$$

$$= \frac{1}{1+x^3} \cdot 2x = \frac{2x}{1+x^3}$$

$$g'(2) = \frac{2x}{1+x^3} \Big|_2 = \frac{2(2)}{1+(2)^3} = \frac{4}{1+8} = \frac{4}{9}$$

d) $\text{sen}(\cos(x+1))$

$$f(x) = \text{sen}(\cos(x+1))$$

$$\begin{aligned} f'(x) &= (\text{sen}(\cos(x+1)))' = \cos(\cos(x+1)) \cdot (-\text{sen}(x+1)) \\ &= -\cos(\cos(x+1)) \cdot \text{sen}(x+1) \end{aligned}$$

e) $\text{sen}((2x+5)^2)$

$$f(x) = \text{sen}((2x+5)^2)$$

$$f'(x) = \cos((2x+5)^2) \cdot 2(2x+5) \cdot 2$$

$$= 4 \cos((2x+5)^2) \cdot (2x+5)$$