

2.2 OTRAS REGLAS DE DERIVACIÓN

- $F(x) = f(x) \cdot g(x) \quad \rightarrow \quad F'(x) = f'(x) \cdot g(x) + f(x) \cdot g'(x)$
- $F(x) = \frac{f(x)}{g(x)} \quad \rightarrow \quad F'(x) = \frac{f'(x) \cdot g(x) - f(x) \cdot g'(x)}{(g(x))^2}$
- $f(x) = \text{sen } x \quad \rightarrow \quad f'(x) = \text{cos } x$
- $f(x) = \text{cos } x \quad \rightarrow \quad f'(x) = -\text{sen } x$
- $f(x) = \text{tg } x \quad \rightarrow \quad f'(x) = 1 + \text{tg}^2 x = \frac{1}{\text{cos}^2 x}$
- $f(x) = \text{arc sen } x \quad \rightarrow \quad f'(x) = \frac{1}{\sqrt{1-x^2}}$
- $f(x) = \text{arc cos } x \quad \rightarrow \quad f'(x) = \frac{-1}{\sqrt{1-x^2}}$
- $f(x) = \text{arc tg } x \quad \rightarrow \quad f'(x) = \frac{1}{1+x^2}$
- $f(x) = e^x \quad \rightarrow \quad f'(x) = e^x$
- $f(x) = a^x \quad \rightarrow \quad f'(x) = a^x \cdot \ln a$
- $f(x) = \ln x \quad \rightarrow \quad f'(x) = \frac{1}{x}$
- $f(x) = \log_a x \quad \rightarrow \quad f'(x) = \frac{1}{x} \cdot \frac{1}{\ln a}$

Halla la derivada de las siguientes funciones:

1 $f(x) = 3 \text{ sen } x - 2 \text{ cos } x \quad \rightarrow \quad f'(x) =$

2 $f(x) = 4 \text{ tg } x + e^x \quad \rightarrow \quad f'(x) =$

3 $f(x) = \frac{x \ln x}{F(x) \cdot G(x)} \quad \rightarrow \quad f'(x) = \underbrace{1 \cdot \ln x}_{F'(x) \cdot G(x)} + \underbrace{x \cdot \frac{1}{x}}_{F(x) \cdot G'(x)} = \ln x + 1$

4 $f(x) = x e^x \quad \rightarrow \quad f'(x) =$

5 $f(x) = (x^2 + 1) \cdot \text{sen } x \quad \rightarrow \quad f'(x) =$

6 $f(x) = 2^x \cdot \text{tg } x \quad \rightarrow \quad f'(x) =$

7 $f(x) = (x^2 - \frac{x}{3}) e^x \quad \rightarrow \quad f'(x) =$

8 $f(x) = (x^3 - 2x + 1) \cdot \text{cos } x \quad \rightarrow \quad f'(x) =$

- 9 $f(x) = 3^x + \ln x - \frac{1}{x}$ $\rightarrow f'(x) =$
- 10 $f(x) = 2^x + \log_2 x$ $\rightarrow f'(x) =$
- 11 $f(x) = x^2 e^x + 2x \ln x$ $\rightarrow f'(x) =$
- 12 $f(x) = \sqrt{x} \operatorname{sen} x - \log_3 5$ $\rightarrow f'(x) =$
- 13 $f(x) = \frac{4x}{x+1} = \frac{F(x)}{G(x)}$ $\rightarrow f'(x) = \frac{\frac{F'(x) \cdot G(x) - F(x) \cdot G'(x)}{(G(x))^2}}{4 \cdot (x+1) - 4x \cdot 1} = \frac{4x+4-4x}{(x+1)^2} = \frac{4}{(x+1)^2}$
- 14 $f(x) = \frac{x^2-1}{2x+2}$ $\rightarrow f'(x) =$
- 15 $f(x) = \frac{x+1}{x-2}$ $\rightarrow f'(x) =$
- 16 $f(x) = \frac{\ln x}{x}$ $\rightarrow f'(x) =$
- 17 $f(x) = \frac{e^x + e^{-x}}{2}$ $\rightarrow f'(x) =$
- 18 $f(x) = \frac{1}{x^2+1}$ $\rightarrow f'(x) =$
- 19 $f(x) = \frac{x^3}{x+2}$ $\rightarrow f'(x) =$
- 20 $f(x) = \frac{2x-1}{3x+2}$ $\rightarrow f'(x) =$
- 21 $f(x) = \frac{x^2}{x^2-1}$ $\rightarrow f'(x) =$
- 22 $f(x) = \frac{\sqrt{x}}{x+2}$ $\rightarrow f'(x) =$
- 23 $f(x) = (x^2-1)\sqrt{x}$ $\rightarrow f'(x) =$
- 24 $f(x) = 3 \operatorname{arc} \operatorname{sen} x$ $\rightarrow f'(x) =$
- 25 $f(x) = 2 \operatorname{arc} \operatorname{cos} x + e^x$ $\rightarrow f'(x) =$
- 26 $f(x) = 5 \operatorname{arctg} x$ $\rightarrow f'(x) =$
- 27 $f(x) = \frac{x e^x - \ln x}{2}$ $\rightarrow f'(x) =$
- 28 $f(x) = 3^x \operatorname{sen} x - \log_2 x$ $\rightarrow f'(x) =$