

Calcula las derivadas de las funciones:

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

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

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

$$4 \quad f(x) = -\frac{7}{2}x - 3$$

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

$$6 \quad f(x) = 2x^4 + x^2 - x^2 + 4$$

$$7 \quad f(x) = \frac{x^3 + 2}{3}$$

$$8 \quad f(x) = \frac{1}{3x^2}$$

$$9 \quad f(x) = \frac{x+1}{x-1}$$

$$10 \quad f(x) = (5x^2 - 3) \cdot (x^2 + x + 4)$$

$$11 \quad f(x) = (x^2 - 1)(x^3 + 3x)$$

$$12 \quad f(x) = \frac{3x^3 + x + 2}{5x^2 + 1}$$

2 Calcula mediante la fórmula de la derivada de una potencia:

$$1 \quad f(x) = \frac{5}{x^5}$$

$$2 \quad f(x) = \frac{5}{x^5} + \frac{3}{x^2}$$

$$3 \quad f(x) = \sqrt{x}$$

$$4 \quad f(x) = \frac{1}{\sqrt{x}}$$

$$5 \quad f(x) = \frac{1}{x\sqrt{x}}$$

$$6 \quad f(x) = \sqrt[3]{x^2} + \sqrt{x}$$

$$7 \quad f(x) = (x^2 + 3x - 2)^4$$

$$8 \quad f(x) = \frac{3(x^2 + 2)^3}{5}$$

3 Calcula mediante la fórmula de la derivada de una raíz:

$$1 \quad f(x) = \sqrt{x^2 - 2x + 3}$$

$$2 \quad f(x) = \sqrt[4]{x^5 - x^3 - 2}$$

$$3 \quad f(x) = \sqrt[3]{\frac{x^2 + 1}{x^2 - 1}}$$

$$4 \quad f(x) = \frac{\sqrt{x-1}}{x+1}$$

$$5 \quad f(x) = \frac{2}{\sqrt{x}}$$

4 Deriva las funciones exponenciales

$$1 \quad f(x) = 10^{\sqrt{x}}$$

$$2 \quad f(x) = e^{3-x^2}$$

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

$$4 \quad f(x) = 3^{2x^2} \cdot \sqrt{x}$$

$$5 \quad f(x) = \frac{e^{2x}}{x^2}$$

$$6 \quad f(x) = 2^{x^2-1}$$

$$7 \quad f(x) = 3^{\sqrt{x^2-1}}$$

$$8 \quad f(x) = e^{\frac{1}{x}}$$

$$9 \quad f(x) = x^3 \cdot e^{-3x}$$

$$10 \quad f(x) = \frac{e^{2x}}{\sqrt{x}}$$

5 Calcula la derivada de la funciones logarítmicas:

$$1 \quad f(x) = \ln(2x^4 - x^3 + 3x^2 - 3x)$$

$$2 \quad f(x) = \ln\left(\frac{e^x + 1}{e^x - 1}\right)$$

$$3 \quad f(x) = \log \sqrt{\frac{1+x}{1-x}}$$

$$4 \quad f(x) = \ln \sqrt{x(1-x)}$$

$$5 \quad f(x) = \ln \sqrt[3]{\frac{3x}{x+2}}$$

$$6 \quad f(x) = \log_2(x^4 - 3x)$$

$$7 \quad f(x) = \sqrt[3]{\log_4 3x}$$

$$8 \quad f(x) = \ln\left(\frac{1-x}{1+x}\right)$$

$$9 \quad f(x) = x^5 \cdot \ln x$$

$$10 \quad f(x) = \ln^5 3x = (\ln 3x)^5$$

$$11 \quad f(x) = \ln \frac{(x-2)^3}{\sqrt{2x-1}}$$

6 Calcula la derivada de la funciones trigonométricas:

$$1 \quad f(x) = \operatorname{sen} \frac{1}{2} x$$

$$2 \quad f(x) = \cos(7 - 2x)$$

$$3 \quad f(x) = 3 \operatorname{tg} 2x$$

$$4 \quad f(x) = \sec(5x + 2)$$

$$5 \quad f(x) = \sqrt[3]{\operatorname{sen} x}$$

$$6 \quad f(x) = \operatorname{sen}^3 3x$$

$$7 \quad f(x) = \operatorname{cotg}(3 - 2x)$$

$$8 \quad f(x) = \cos \frac{x+1}{x-1}$$

$$9 \quad f(x) = \sqrt{\frac{1 - \operatorname{sen} x}{1 + \operatorname{sen} x}}$$

$$10 \quad f(x) = \operatorname{sen} x^4$$

$$11 \quad f(x) = \operatorname{sen}^4 x$$

$$12 \quad f(x) = \frac{\cos x}{5}$$

$$13 \quad f(x) = \cos(3x^2 + x - 1)$$

$$14 \quad f(x) = \frac{1}{2} \cos^2 5x$$

$$15 \quad f(x) = \operatorname{tg} \sqrt{x}$$

$$16 \quad f(x) = \operatorname{cotg} 4x^2$$

$$17 \quad f(x) = \operatorname{cotg}^2 4x$$

$$18 \quad f(x) = \sec 5x$$

$$19 \quad f(x) = \operatorname{cosec} \left(\frac{x}{2} \right)$$

7 Calcular la derivada de las funciones trigonométricas inversas:

$$1 \quad f(x) = \operatorname{arc} \operatorname{sen} (1 - 2x^2)$$

$$2 \quad f(x) = \operatorname{arc} \operatorname{sen} \sqrt{x^2 - 4}$$

$$3 \quad f(x) = \operatorname{arc} \operatorname{cose} e^x$$

$$4 \quad f(x) = \operatorname{arc} \operatorname{tg} \sqrt{x}$$

$$5 \quad f(x) = \operatorname{arctg} \frac{1+x}{1-x}$$

$$6 \quad f(x) = \operatorname{arc} \operatorname{sen} (2x - 3)$$

$$7 \quad f(x) = \operatorname{arc} \operatorname{tg} 3x^2$$

$$8 \quad f(x) = \operatorname{arc} \operatorname{cos} x^2$$

8 Derivar por la regla de la cadena las funciones:

$$1 \quad f(x) = \ln \operatorname{sen} x$$

$$2 \quad f(x) = \ln \operatorname{cos} 2x$$

$$3 \quad f(x) = \ln \operatorname{tg} (1 - x)$$

$$4 \quad f(x) = \ln \sqrt{\frac{1 + \operatorname{sen} x}{1 - \operatorname{sen} x}}$$

$$5 \quad f(x) = \operatorname{sen} \sqrt{\ln(1 - 3x)}$$

$$6 \quad f(x) = \operatorname{tg} (\operatorname{sen} \sqrt{5x})$$

$$7 \quad f(x) = \operatorname{sen}^2 (\operatorname{cos} 2x)$$

$$8 \quad f(x) = \left(\frac{x^2 + 1}{x^2 - 1} \right)^3$$

$$9 \quad f(x) = \operatorname{cos} 3^x$$

$$10 \quad f(x) = \operatorname{tg} (\ln x)$$

$$11 \quad f(x) = \operatorname{sen} (\operatorname{sen} x)$$

$$12 \quad f(x) = \operatorname{sen} \sqrt{\ln(1 - 3x)}$$

$$13 \quad f(x) = \operatorname{arc} \operatorname{cotg} (\ln x)$$

9 Deriva las funciones potenciales-exponenciales:

$$1 \quad f(x) = (\operatorname{sen} x)^{\operatorname{cos} x}$$

$$2 \quad f(x) = x^2 \sqrt{\operatorname{arc} \operatorname{cos} x}$$

$$3 \quad f(x) = \log_{\operatorname{sen} x} x$$

$$4 \quad f(x) = x^{\operatorname{sen} x}$$