

Halla la derivada de cada una de estas funciones:

1 $f(x) = \frac{x^6}{5} - \frac{3x^2}{2} + \frac{1}{5}$ $\rightarrow f'(x) =$

2 $f(x) = \frac{-3x^2}{2} - \frac{5}{x} + 2$ $\rightarrow f'(x) =$

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

4 $f(x) = \sqrt{x} - 3\sqrt[3]{x}$ $\rightarrow f'(x) =$

5 $f(x) = \sqrt{2x} - \frac{1}{x^2} + \sqrt{3}$ $\rightarrow f'(x) =$

6 $f(x) = \frac{x^3 - 2x^2 + 3}{7}$ $\rightarrow f'(x) =$

7 $f(x) = \frac{x^2 - 3x + 1}{x}$ $\rightarrow f'(x) =$

8 $f(x) = \sqrt{\frac{3}{x}} - e^4$ $\rightarrow f'(x) =$

9 $f(x) = (x + 2)e^x$ $\rightarrow f'(x) =$

10 $f(x) = (3x - 1)\cos x$ $\rightarrow f'(x) =$

11 $f(x) = (x + 2)^2 - \ln(x + 1)$ $\rightarrow f'(x) =$

12 $f(x) = \frac{x^2 + 1}{x + 2}$ $\rightarrow f'(x) =$

13 $f(x) = \frac{x}{(x + 1)^2}$ $\rightarrow f'(x) =$

14 $f(x) = \frac{e^{3x}}{x^2 + 1}$ $\rightarrow f'(x) =$

15 $f(x) = (x^2 + 3)e^x$ $\rightarrow f'(x) =$

16 $f(x) = 2^x + \lg(x - 1)$ $\rightarrow f'(x) =$

17 $f(x) = \ln(x^2 - 3)$ $\rightarrow f'(x) =$

18 $f(x) = \left(\frac{x - 2}{x + 1}\right)^5$ $\rightarrow f'(x) =$

19 $f(x) = \frac{2x}{(x - 2)^3}$ $\rightarrow f'(x) =$

20 $f(x) = \frac{\sqrt{x}}{\cos x}$ $\rightarrow f'(x) =$

Halla la derivada de cada una de las siguientes funciones:

$$21 \quad f(x) = \ln \left(\frac{x+2}{x-3} \right) \quad \rightarrow f'(x) =$$

$$22 \quad f(x) = x^2 e^x - x^3 \cos x \quad \rightarrow f'(x) =$$

$$23 \quad f(x) = 3^{2x^2+1} \cdot \ln(5x+1) \quad \rightarrow f'(x) =$$

$$24 \quad f(x) = \operatorname{sen}^2(2\sqrt{x}+3) \quad \rightarrow f'(x) =$$

$$25 \quad f(x) = \frac{e^{2x^2}}{\ln x} \quad \rightarrow f'(x) =$$

$$26 \quad f(x) = \frac{\sqrt{x+2}}{2x+1} \quad \rightarrow f'(x) =$$

$$27 \quad f(x) = \sqrt{\frac{2x+1}{x-2}} \quad \rightarrow f'(x) =$$

$$28 \quad f(x) = \frac{(x-1)^2}{\sqrt{x}} \quad \rightarrow f'(x) =$$

$$29 \quad f(x) = \ln[\cos(x^2-1)] \quad \rightarrow f'(x) =$$

$$30 \quad f(x) = \frac{1+\operatorname{tg} x}{1-\operatorname{tg} x} \quad \rightarrow f'(x) =$$

$$31 \quad f(x) = \ln(e^{\cos x}) \quad \rightarrow f'(x) =$$

$$32 \quad f(x) = \sqrt{2^x-1} \quad \rightarrow f'(x) =$$

$$33 \quad f(x) = \ln(\operatorname{sen} x \cdot \cos x) \quad \rightarrow f'(x) =$$

$$34 \quad f(x) = \operatorname{sen}(\sqrt{x}) + \cos^2(\sqrt{x}) \quad \rightarrow f'(x) =$$

$$35 \quad f(x) = \cos(2x^3 - 2\sqrt[3]{3x}) \quad \rightarrow f'(x) =$$

$$36 \quad f(x) = \operatorname{arc} \operatorname{tg} \left(\frac{3x+1}{2} \right) \quad \rightarrow f'(x) =$$

$$37 \quad f(x) = \operatorname{arc} \operatorname{sen}(\sqrt{x+1}) \quad \rightarrow f'(x) =$$

$$38 \quad f(x) = \operatorname{arc} \cos(x^3-2) \quad \rightarrow f'(x) =$$

$$39 \quad f(x) = \frac{e^x + e^{-x}}{e^x - e^{-x}} \quad \rightarrow f'(x) =$$

$$40 \quad f(x) = \log_2 \left(\frac{3x+1}{x^2+1} \right) \quad \rightarrow f'(x) =$$

$$41 \quad f(x) = \sqrt{x + \sqrt{2x+3}} \quad \rightarrow f'(x) =$$

Página 23

$$1 \quad f'(x) = \frac{6x^5}{5} - 3x$$

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

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

$$4 \quad f'(x) = \frac{1}{2\sqrt{x}} - \frac{1}{3\sqrt{x^2}}$$

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

$$6 \quad f'(x) = \frac{3x^2 - 4x}{7}$$

$$7 \quad f(x) = x - 3 + \frac{1}{x} \rightarrow f'(x) = 1 - \frac{1}{x^2} = \frac{x^2 - 1}{x^2}$$

$$8 \quad f'(x) = \frac{-3}{2x\sqrt{3x}}$$

$$9 \quad f'(x) = (x + 3)e^x$$

$$10 \quad f'(x) = 3\cos x - 3x \sin x + \sin x$$

$$11 \quad f'(x) = \frac{2x^2 + 4x + 1}{x + 1}$$

$$12 \quad f'(x) = \frac{x^2 + 4x - 1}{(x + 2)^2}$$

$$13 \quad f'(x) = \frac{-x + 1}{(x + 1)^3}$$

$$14 \quad f'(x) = \frac{e^{3x}(3x^2 - 2x + 3)}{(x^2 + 1)^2}$$

$$15 \quad f'(x) = (x^2 + 2x + 3)e^x$$

$$16 \quad f'(x) = 2^x \cdot \ln 2 + 1 + \lg^2(x - 1)$$

$$17 \quad f'(x) = \frac{2x}{x^2 - 3}$$

$$18 \quad f'(x) = \frac{15(x - 2)^4}{(x + 1)^6}$$

$$19 \quad f'(x) = \frac{-4x - 4}{(x - 2)^4}$$

$$20 \quad f'(x) = \frac{\cos x + 2x \sin x}{2\sqrt{x} \cos^2 x}$$

$$21 \quad f'(x) = 2xe^x + x^2e^x - 3x^2\cos x + x^3 \sin x$$

$$22 \quad f'(x) = 3^{2x^2+1} \left(4x \cdot \ln 3 \cdot \ln(5x + 1) + \frac{5}{5x + 1} \right)$$

$$23 \quad f'(x) = \frac{\sin(4\sqrt{x} + 6)}{\sqrt{x}}$$

$$24 \quad f'(x) = \frac{e^{2x^2}(4x^2 \ln x - 1)}{x \ln^2 x}$$

$$25 \quad f'(x) = \frac{-2x - 7}{2(2x + 1)^2 \sqrt{x + 2}}$$

$$26 \quad f'(x) = \frac{-5\sqrt{x - 2}}{2\sqrt{2x + 1}(x - 2)^2}$$

$$27 \quad f'(x) = \frac{-3x^2 - 2x - 1}{2x\sqrt{x}}$$

$$28 \quad f'(x) = -2x \operatorname{tg}(x^2 - 1)$$

$$29 \quad f'(x) = \frac{2(1 + \operatorname{tg}^2 x)}{(1 - \operatorname{tg} x)^2}$$

$$30 \quad f(x) = \cos x \rightarrow f'(x) = -\sin x$$

$$31 \quad f'(x) = \frac{\sqrt{2^{x-1}} \cdot \ln 2}{2}$$

$$32 \quad f(x) = \ln(\sin x) + \ln(\cos x)$$

$$f'(x) = \frac{2}{\operatorname{tg} 2x}$$

$$33 \quad f'(x) = \frac{\cos \sqrt{x}(1 - 2 \sin \sqrt{x})}{2\sqrt{x}}$$

$$34 \quad f'(x) = -\left(6x^2 - \frac{2}{\sqrt[3]{9x^2}}\right) \sin\left(2x^3 - 2\sqrt[3]{3x}\right)$$

$$35 \quad f'(x) = \frac{6}{9x^2 + 6x + 5}$$

$$36 \quad f'(x) = \frac{1}{2\sqrt{-x^2 - x}}$$

$$37 \quad f'(x) = \frac{-3x^2}{\sqrt{1 - (x^3 - 2)^2}}$$

$$38 \quad f'(x) = \frac{-4}{(e^x - e^{-x})^2}$$

$$39 \quad f'(x) = \frac{-3x^2 - 2x + 3}{(3x + 1)(x^2 + 1) \ln 2}$$

$$40 \quad f'(x) = \frac{\sqrt{2x + 3} + 1}{2\sqrt{(2x + 3)(x + \sqrt{2x + 3})}}$$

Página 24

$$1 \quad f'(x) = \frac{-5}{x^2 - x - 6}$$