

Calcular las derivadas de las siguientes funciones

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

$$f'(x) = \frac{1}{2\sqrt{x}} - \operatorname{sen} x$$

2) $g(x) = x^2 \operatorname{sen} x$

$$g'(x) = 2x \operatorname{sen} x + x^2 \cos x$$

3) $h(x) = \operatorname{sen} x \cdot \cos x$

$$h'(x) = \cos^2 x - \operatorname{sen}^2 x$$

4) $i(x) = x^3 \cos x$

$$i'(x) = 3x^2 \cos x - x^3 \operatorname{sen} x$$

5) $j(x) = 7^x \cdot x^2$

$$j'(x) = x^2 \cdot 7^x \cdot \ln 7 + 7^x \cdot 2x$$

6) $k(x) = e^x \cdot 3x^2$

$$k'(x) = 3xe^x(x+2)$$

7) $l(x) = \frac{x + \operatorname{sen} x}{x + \cos x}$

$$l'(x) = \frac{1 + (1+x)\cos x + (x-1)\operatorname{sen} x}{(x + \cos x)^2}$$

8) $m(x) = (x^3 + 3x)^2$

$$m'(x) = 2(x^3 + 3x)(3x^2 + 3)$$

9) $n(x) = \left(\frac{1}{x^2 + 1}\right)^2$

$$n'(x) = \frac{-4x}{(x^2 + 1)^3}$$

10) $o(x) = \operatorname{sen}(x^2 + 4x)$

$$o'(x) = (2x + 4)\cos(x^2 + 4x)$$

11) $p(x) = \operatorname{sen}^2 x \cdot \cos^2 x$

$$p'(x) = 2\operatorname{sen} x \cdot \cos^3 x - 2\cos x \cdot \operatorname{sen}^3 x$$

12) $q(x) = e^{5x}$

$$q'(x) = 5e^{5x}$$

13) $r(x) = \ln(7x^2)$

$$r'(x) = \frac{2}{x}$$

14) $s(x) = \sqrt{\operatorname{sen} x}$

$$s'(x) = \frac{\cos x}{2\sqrt{\operatorname{sen} x}}$$

$$15) t(x) = \ln(\sqrt{x^2 + 3})$$

$$t'(x) = \frac{x}{x^2 + 3}$$

$$16) u(x) = 5^{2x-8}$$

$$u'(x) = 2 \ln 5 \cdot 5^{2x-8}$$

$$17) v(x) = \cos(7^x + 4x)$$

$$v'(x) = -(7^x \cdot \ln 7 + 4) \cdot \text{sen}(7^x + 4x)$$

$$18) w(x) = \sqrt[5]{x^4}$$

$$w'(x) = \frac{4}{5\sqrt[5]{x}}$$

$$19) x(x) = x\sqrt{x}$$

$$x'(x) = \frac{3\sqrt{x}}{2}$$

$$20) y(x) = \frac{x}{\sqrt[3]{x^2}}$$

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

$$21) z(x) = \frac{x^2 + 1}{x - 1}$$

$$z'(x) = \frac{x^2 - 2x - 1}{(x - 1)^2}$$

$$22) a(x) = \frac{x^2 - 3}{x^2 + 3}$$

$$a'(x) = \frac{12x}{(x^2 + 3)^2}$$

$$23) b(x) = \frac{7}{x + 5}$$

$$b'(x) = -\frac{7}{(x + 5)^2}$$

$$24) c(x) = \frac{-x}{x + 2}$$

$$c'(x) = \frac{-2}{(x + 2)^2}$$