1. Ejercicios: - Calcula las siguientes derivadas:

(a)

$$y = 2x$$

Sol: $y' = 2$

(b)

$$y = 3x - 5$$

Sol: $y' = 3$

(c)

$$y = 7x^5 - 3x^2 + x + 2345$$

Sol: $y' = 35x^4 - 6x + 1$

(d)

$$y = x\,(x+2)$$

Sol: $y' = 2x + 2$

(e)

$$y = (x-1)\,(x+1)$$

Sol: $y' = 2x$

(f)

$$y = \frac{5x^4}{7} - \frac{x^3}{55} - \frac{3x^2}{4} + x - 1255$$

Sol: $y' = \frac{20x^3}{7} - \frac{3x^2}{55} - \frac{3x}{2} + 1$

(g)

$$y = (x+1)^3$$

Sol: $y' = 3\,(x+1)^2$

(h)

$$y = \left(x^3 + x + 1\right)^4$$

Sol: $y' = \left(12x^2 + 4\right)\left(x^3 + x + 1\right)^3$

(i)

$$y = -(3x-1)^2 + (3x+1)^2$$

Sol: $y' = 12$

(j)

$$y = \frac{1}{x^2}$$

Sol: $y' = -\frac{2}{x^3}$

(k)

$$y = \frac{1}{x+1}$$

Sol: $y' = -\frac{1}{(x+1)^2}$

(l)

$$y = \frac{x^2 - 3}{x^3 + x}$$

Sol: $y' = \frac{2x}{x^3+x} + \frac{\left(-3x^2-1\right)\left(x^2-3\right)}{\left(x^3+x\right)^2}$

(m)

$$y = \frac{x+1}{x}$$

Sol: $y' = \frac{1}{x} - \frac{x+1}{x^2}$

(n)

$$y = \frac{x^3\left(x^2-1\right)}{3} - 3$$

Sol: $y' = \frac{2x^4}{3} + x^2\left(x^2-1\right)$

(ñ)

$$y = \frac{1}{x^3}$$

Sol: $y' = -\frac{3}{x^4}$

(o)

$$y = \sqrt{x}$$

Sol: $y' = \frac{1}{2\sqrt{x}}$

(p)

$$y = x^{\frac{2}{3}}$$

Sol: $y' = \frac{2}{3\sqrt[3]{x}}$