

Soluciones

Tarea 3

$$(7) \quad y = \left(\frac{3}{2}x - 5\right)^4 \longrightarrow y' = 4\left(\frac{3}{2}x - 5\right)^3 \cdot \frac{3}{2} = \boxed{6\left(\frac{3}{2}x - 5\right)^3}$$

$$(9) \quad y = (x^2 - 3)^3 \longrightarrow y' = 3(x^2 - 3)^2 \cdot 2x = \boxed{6x(x^2 - 3)^2}$$

$$(12) \quad y = \sqrt[3]{(x+6)^2} = (x+6)^{2/3} \longrightarrow y' = \frac{2}{3}(x+6)^{-1/3} \cdot 1 = \boxed{\frac{2}{3\sqrt[3]{x+6}}}$$

$$(13) \quad y = (1 + e^x)^2 \longrightarrow y' = \boxed{2(1 + e^x) \cdot e^x}$$

$$(22) \quad y = \sqrt{\ln x} = (\ln x)^{1/2} \longrightarrow y' = \frac{1}{2}(\ln x)^{-1/2} \cdot \frac{1}{x} = \frac{1}{2x\sqrt{\ln x}} \cdot \frac{1}{x} = \boxed{\frac{1}{2x\sqrt{\ln x}}}$$

$$(37) \quad y = (5x - 2)^3 \longrightarrow y' = 3(5x - 2)^2 \cdot 5 = \boxed{15(5x - 2)^2}$$

$$(42) \quad y = \sqrt{5x^3 - x} = (5x^3 - x)^{1/2} \longrightarrow y' = \frac{1}{2}(5x^3 - x)^{-1/2} \cdot (15x^2 - 1) = \boxed{\frac{15x^2 - 1}{2\sqrt{5x^3 - x}}}$$

$$(47) \quad y = \sqrt[4]{x^5 - x^3 - 2} = (x^5 - x^3 - 2)^{1/4} \longrightarrow y' = \frac{1}{4}(x^5 - x^3 - 2)^{-3/4} \cdot (5x^4 - 3x^2) =$$
$$= \frac{1}{4} \cdot \frac{1}{\sqrt[4]{(x^5 - x^3 - 2)^3}} \cdot (5x^4 - 3x^2) = \boxed{\frac{5x^4 - 3x^2}{4\sqrt[4]{(x^5 - x^3 - 2)^3}}}$$

$$(51) \quad y = (x^2 + 3x - 2)^4 \longrightarrow y' = 4(x^2 + 3x - 2)^3 \cdot (2x + 3) =$$
$$= \boxed{(x^2 + 3x - 2)^3 \cdot (8x + 12)}$$