

Soluciones

Tarea 4

$$(8) \quad y = \frac{x}{3} + \sqrt{2x} = \frac{1}{3} \cdot x + \sqrt{2x} \rightarrow y' = \frac{1}{3} + \frac{1}{2\sqrt{2x}} \cdot 2 = \boxed{\frac{1}{3} + \frac{1}{\sqrt{2x}}}$$

$$(46) \quad y = \frac{e^x + e^{-x}}{2} = \frac{1}{2}(e^x + e^{-x}) \rightarrow y' = \frac{1}{2}(e^x + e^{-x} \cdot (-1)) = \boxed{\frac{1}{2}(e^x - e^{-x})}$$

$$(2) \quad y = \sin(3x+1) \cdot \cos(3x+1) \rightarrow y' = \cos(3x+1) \cdot 3 \cdot \cos(3x+1) + \sin(3x+1) \cdot (-\sin(3x+1) \cdot 3) = \boxed{3\cos^2(3x+1) - 3\sin^2(3x+1)}$$

$$(3) \quad y = x \cdot e^{2x+1} \rightarrow y' = 1 \cdot e^{2x+1} + x \cdot e^{2x+1} \cdot 2 = \boxed{e^{2x+1}(1+2x)}$$

$$(5) \quad y = e^{-x} \cdot \ln(x+3) \rightarrow y' = e^{-x} \cdot (-1) \cdot \ln(x+3) + e^{-x} \cdot \frac{1}{x+3} \cdot 1 = \boxed{e^{-x} \left(-\ln(x+3) + \frac{1}{x+3} \right)}$$

$$(24) \quad y = x^3 \cdot e^{1-x} \rightarrow y' = 3x^2 \cdot e^{1-x} + x^3 \cdot e^{1-x} \cdot (-1) = \boxed{e^{1-x}(3x^2 - x^3)}$$

$$(36) \quad y = x \cdot 2^{x+1} \rightarrow y' = 1 \cdot 2^{x+1} + x \cdot 2^{x+1} \cdot \ln 2 \cdot 1 = \boxed{2^{x+1}(1+x \ln 2)}$$

$$(40) \quad y = e^{2x} \cdot \ln(x^2+1) \rightarrow y' = e^{2x} \cdot 2 \cdot \ln(x^2+1) + e^{2x} \cdot \frac{1}{x^2+1} \cdot 2x = \boxed{e^{2x} \left(2\ln(x^2+1) + \frac{2x}{x^2+1} \right)}$$

$$(50) \quad y = 3^{2x^2} \cdot \sqrt{x} \rightarrow y' = 3^{2x^2} \cdot \ln 3 \cdot 4x \cdot \sqrt{x} + 3^{2x^2} \cdot \frac{1}{2\sqrt{x}} = \boxed{3^{2x^2} \left(\ln 3 \cdot 4x \cdot \sqrt{x} + \frac{1}{2\sqrt{x}} \right)}$$