

5.4 (p 348)

60, 62, 64

$$y = \ln \frac{e^x + e^{-x}}{2} \quad @ (0, 0)$$

$$y = \frac{1}{2} \ln e^x + e^{-x}$$

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

$$y'(0) = \frac{1}{2} \frac{1}{1+1} (1-1) = 0$$

$$y - 0 = 0(x - 0)$$

$$y = 0$$

$$\textcircled{62} \quad y = xe^x - e^x \quad @ (1, 0)$$

$$y' = (xe^x + 1 - e^x) - e^x$$

$$y'(1) = (e^1 + e) - e^1 = e$$

$$y - 0 = e(x - 1)$$

$$(64) \quad e^{xy} + x^2 - y^2 = 10$$

$$e^{xy} \left(x \cdot 1 \frac{dy}{dx} + y \right) + 2x - 2y \frac{dy}{dx} = 0$$

$$\frac{dy}{dx} (x e^{xy} - 2y) = -2x - y e^{xy}$$

$$\frac{dy}{dx} = - \frac{2x + y e^{xy}}{x e^{xy} - 2y}$$