

(10)

$$e^x = 2\cos(2y)$$

$$\frac{d}{dx}[e^x] = \frac{d}{dx}[2\cos(2y)]$$

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

$$\boxed{\frac{dy}{dx} = \frac{e^x}{-4\sin(2y)}}$$

$$\left. \frac{dy}{dx} \right|_{(0, \pi/6)} = \frac{e^0}{-4\sin(2\pi/6)} = \frac{1}{-4\sin(\pi/3)} = \frac{1}{-4\frac{\sqrt{3}}{2}} = \boxed{\frac{-1}{2\sqrt{3}}}$$

(2)

$$x^2 y^2 = 9$$

$$\frac{d}{dx}[x^2 y^2] = \frac{d}{dx}[9]$$

$$2xy^2 + x^2 \cdot 2y \frac{dy}{dx} = 0$$

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

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

$$\boxed{\frac{dy}{dx} = -\frac{y}{x}}$$

$$\left. \frac{dy}{dx} \right|_{(-1, 3)} = -\frac{3}{-1} = \boxed{3}$$