$$\frac{dy}{dx}\left(\cos(xy)\right) \cdot \frac{dy}{dx}(xy) \quad \frac{dy}{dx}\left(\sin(x+y)\right) \cdot \frac{dy}{dx}(x+y)$$

Product rule ↗

$$\boxed{x \cdot \frac{dy}{dx} + 1 \cdot y}$$

$$\left(-\sin(xy) \cdot x\frac{dy}{dx} + y\right) = \cos(x+y) \cdot 1 + \frac{dy}{dx}$$

$$-x\sin(xy)\frac{dy}{dx} + y = \cos(x+y) + \frac{dy}{dx}$$
$$\quad -y \qquad\qquad\qquad -\frac{dy}{dx}$$

$$-x\sin(xy)\frac{dy}{dx} - \frac{dy}{dx} = \cos(x+y) - y$$

$$\frac{dy}{dx}\left(-x\sin(xy) - 1\right) = \cos(x+y) - y$$

$$\frac{dy}{dx} = \frac{\cos(x+y) - y}{-x\sin(xy) - 1}$$