

$$\textcircled{1} \left\{ \frac{\partial f}{\partial x} = \cos(xy) \cdot xy + 3 \right.$$

$$\textcircled{2} \left\{ \frac{\partial f}{\partial y} = \cos(xy) \cdot x^2 \right.$$

La plus facile à intégrer est le  $\textcircled{2}$  :

$$f(x, y) = \sin(xy) + g(x)$$

On dérive par rapport à  $x$

$$\frac{\partial f}{\partial x} = \cos(xy) \cdot xy + g'(x)$$

$$= \cos(xy) \cdot xy + 3 \quad \textcircled{1}$$

$$\Rightarrow g'(x) = 3 \quad \rightarrow \quad g(x) = 3x + \text{cte}$$

$$f(x, y) = \sin(xy) + 3x + \text{cte}$$