

$$\int \omega = \underbrace{(\cos(x^2y)2xy + 3)}_{P(x,y)} dx + \underbrace{\cos(x^2y)x^2}_{Q(x,y)} dy$$

$$\frac{\partial P}{\partial y} = -\sin(x^2y)2x^2 + \cos(x^2y)2x$$

$$\frac{\partial Q}{\partial x} = -\sin(x^2y)2xyx^2 + \cos(x^2y)2x$$

$$\frac{\partial P}{\partial y} = \frac{\partial Q}{\partial x} \quad \text{ça marche !}$$

On peut trouver f telle que

$$\int \omega = \frac{df}{dx} dx + \frac{df}{dy} dy$$

On a donc

$$\left\{ \begin{array}{l} \frac{df}{dx} = \cos(x^2y)2xy + 3 \\ \frac{df}{dy} = \cos(x^2y)x^2 \end{array} \right.$$