

Quick Hit 7.2

1. Let $f(x, y) = 3x^2 - xy + 3y + 1$. Compute $\frac{\partial f}{\partial x}$ and $\frac{\partial f}{\partial y}$.

$$\frac{\partial f}{\partial x} = 6x - y$$

$$\frac{\partial f}{\partial y} = -x + 3$$

2. Let $g(x, y) = \ln(4 + 5x^2 + y^4)$. Compute $\frac{\partial g}{\partial x}$ and $\frac{\partial g}{\partial y}$.

$$\frac{\partial g}{\partial x} = \frac{1}{4 + 5x^2 + y^4} \cdot 10x$$

$$\frac{\partial g}{\partial y} = \frac{1}{4 + 5x^2 + y^4} \cdot 4y^3$$