

**Partial derivative practice**

For each of the following, compute the first-order partial derivatives.

1.  $f(x, y) = x^2y + 4xy^5$

2.  $f(x, y) = \left(y + \frac{3}{x^2}\right)(x - 2)$

3.  $f(x, y) = \sqrt{3x + 5y}$

4.  $f(x, y) = \sin(3x) \cos(4y)$

5.  $f(x, y) = \sin(5xy^2)$

6.  $f(x, y) = e^{-(x^2+y^2)}$