

Name: \_\_\_\_\_

### • Partial Derivatives Challenge

Partial derivatives are important. We will be doing them *all* the time in this class! The faster and more accurately you can compute partial derivatives, the better.

1. Find  $f_x$  of  $f(x,y) = 3x^2y - 2x\cos(xy)$ .

2. Find  $f_y$  of  $f(x,y) = \frac{y}{3x+y}$ .

3. Find  $f_{xy}$  of  $f(x,y) = y\sin(xy + 4)$ .

4. Find  $f_{yy}$  of  $f(x,y) = e^y \ln(x - e^y)$ .

5. Find  $F_z$  of  $F(x,y,z) = \frac{x+z^2}{\cos(xyz)}$ .