

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

Section: \_\_\_\_\_

**Math 112**

## Group Activity: Partial Derivative Practice

Compute the partial derivatives. Do not simplify.

1.  $f(x, y) = x^5 - 4xy^2 + 7y^3 - 19$

$f_x(x, y) =$

$f_y(x, y) =$

2.  $z = x^2y + e^{3x} - \ln(y)$

$\frac{\partial z}{\partial x} =$

$\frac{\partial z}{\partial y} =$

3.  $f(x, y) = (x^2 - y^3)^4$

$f_x(x, y) =$

$f_y(x, y) =$

4.  $z = x \ln(xy)$

$\frac{\partial z}{\partial x} =$

$\frac{\partial z}{\partial y} =$

5.  $f(x, y) = 10 + 2x - 4y$

$f_x(x, y) =$

$f_y(x, y) =$

6.  $z = ye^x + x^2y$

$\frac{\partial z}{\partial x} =$

$\frac{\partial z}{\partial y} =$

7.  $g(q, r) = \frac{q^2 + 3r}{4q + 5r^2}$

$g_q(q, r) =$

$g_r(q, r) =$

8.  $z = x^3y^2 + 3y^3 - 6e^xy$

$\frac{\partial z}{\partial x} =$

$\frac{\partial z}{\partial y} =$

9.  $f(t, m) = te^m + t^2(m^2 + 2m)$

$f_t(t, m) =$

$f_m(t, m) =$

10.  $w = \frac{x^3y}{y+1}$

$\frac{\partial w}{\partial x} =$

$\frac{\partial w}{\partial y} =$

11.  $t = (s^2 + rs)(r + s^3)$

$$\frac{\partial t}{\partial r} =$$

$$\frac{\partial t}{\partial s} =$$

12.  $g(u, v) = ve^{u^2v}$

$$g_u(u, v) =$$

$$g_v(u, v) =$$

13.  $p = x^3y^2 + 3\ln(x^2y) + 4x^2 - \frac{5x}{y}$

$$\frac{\partial p}{\partial x} =$$

$$\frac{\partial p}{\partial y} =$$

14.  $h(u, w) = \frac{u + w}{u - w}$

$$h_u(u, w) =$$

$$h_w(u, w) =$$

15.  $z = (m^2p + p^2m)(m + p)^3$

$$\frac{\partial z}{\partial m} =$$

$$\frac{\partial z}{\partial p} =$$