

No calculators will be allowed and no partial credit will be given.

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1. Find  $f_x$  given  $f(x, y) = e^{xy^2} + 4x^2$ .
2. Find  $f_y$  given  $f(x, y) = 2 \cos(xy)$ .
3. Find  $\frac{\partial f}{\partial x}$  given  $f(x, y) = e^{x^2y} + 2x^2$ .
4. Find  $\frac{\partial f}{\partial x}$  given  $f(x, y) = 2 \ln(e^y + 2x)$ .
5. Find  $f_x(0, -1)$  given  $f(x, y) = xy^4 + 2x^3y$ .
6. Find  $\frac{\partial f}{\partial y}(0, 0)$  given  $f(x, y) = 3ye^{y^2} + xy^2$ .
7. Find  $f_y(0, 0)$  given  $f(x, y) = 4 \cos(2y + x)$ .
8. Find  $\frac{\partial f}{\partial x}(0, 0)$  given  $f(x, y) = 2 \sin(3y + x)$ .
9. Find  $f_y$  given  $f(x, y, z) = e^{xy}z + xy^2z$ .
10. Find  $f_x$  given  $f(x, y, z) = \sin(yz + xy)$ .
11. Find  $\frac{\partial f}{\partial y}$  given  $f(x, y, z) = \ln(yz^2 + xy^2)$ .

1.  $y^2 e^{x y^2} + 8 x$

2.  $-2 x \sin(x y)$

3.  $2 x y e^{x^2 y} + 4 x$

4.  $\frac{4}{e^y + 2 x}$

5. 1

6. 3

7. 0

8. 2

9.  $x e^{x y} z + 2 x y z$

10.  $y \cos(y z + x y)$

11.  $\frac{z^2 + 2 x y}{y z^2 + x y^2}$