

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

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

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

2. $3 y \cos(x y)$

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

4. $3 (2 x y + 2 y)$

5. 0

6. 3

7. 0

8. -12

9. 0

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

11. $\frac{3 y}{y^2 z + 3 x y}$