

1.(1 pt)

Find the first partial derivatives of $f(x,y) = \frac{1x-1y}{1x+1y}$ at the point $(x,y) = (3, 1)$.

$\frac{\partial f}{\partial x}(3, 1) =$ _____

$\frac{\partial f}{\partial y}(3, 1) =$ _____

2.(1 pt)

Find the first partial derivatives of $f(x,y,z) = z \arctan(\frac{y}{x})$ at the point $(3, 3, -5)$.

A. $\frac{\partial f}{\partial x}(3, 3, -5) =$ _____

B. $\frac{\partial f}{\partial y}(3, 3, -5) =$ _____

C. $\frac{\partial f}{\partial z}(3, 3, -5) =$ _____

3.(1 pt)

Find the first partial derivatives of $f(x,y) = \sin(x-y)$ at the point $(3, 3)$.

A. $f_x(3, 3) =$ _____

B. $f_y(3, 3) =$ _____

4.(1 pt)

If $\sin(5x + 4y + z) = 0$, find the first partial derivatives $\frac{\partial z}{\partial x}$ and $\frac{\partial z}{\partial y}$ at the point $(0, 0, 0)$.

A. $\frac{\partial z}{\partial x}(0, 0, 0) =$ _____

B. $\frac{\partial z}{\partial y}(0, 0, 0) =$ _____

5.(1 pt)

Find all the first and second order partial derivatives of $f(x,y) = -5 \sin(2x + y) - 7 \cos(x - y)$.

A. $\frac{\partial f}{\partial x} = f_x =$ _____

B. $\frac{\partial f}{\partial y} = f_y =$ _____

C. $\frac{\partial^2 f}{\partial x^2} = f_{xx} =$ _____

D. $\frac{\partial^2 f}{\partial y^2} = f_{yy} =$ _____

E. $\frac{\partial^2 f}{\partial x \partial y} = f_{yx} =$ _____

F. $\frac{\partial^2 f}{\partial y \partial x} = f_{xy} =$ _____