

NAME: Solutions
SECTION: _____

Math 2401 (D1-D3)
9/24/2014

Quiz 4

[5.5 pts.]

1. Let the function:

$$f(x, y, z) = 8x^6 - xy + yz^2 - 2z^6$$

Find:

a). $\frac{\partial f}{\partial x} = 48x^5 - y$

1.1 pts. each

b). $\frac{\partial f}{\partial y} = -x + z^2$

c). $\frac{\partial f}{\partial z} = 2yz - 12z^5$

d). $\frac{\partial^2 f}{\partial x \partial y} = \frac{\partial}{\partial x} (-x + z^2) = -1$

e). $\frac{\partial^2 f}{\partial z^2} = \frac{\partial}{\partial z} (2yz - 12z^5) = 2y - 60z^4$

[4.5 pts.]

2. Let the function:

$$f(x, y, z) = e^{4x} \sin(y^2 z)$$

Find:

a). $\frac{\partial f}{\partial x} = 4e^{4x} \sin(y^2 z)$

1.5 pts. each

b). $\frac{\partial f}{\partial y} = e^{4x} \cos(y^2 z) \cdot 2yz$

c). $\frac{\partial f}{\partial z} = e^{4x} \cos(y^2 z) \cdot y^2$