

Math 2471 Calc 3 - Homework #4

Pg. 900, #11-33, 45, 47, 59, 63, 69, 74, 77, 79 and 85

Pg. 937, #7, 9, 15 and 16

Pg. 900 #11-33 Find both partial derivatives for the following

$$\#11 \quad f(x, y) = 2x - 5y + 3$$

$$\#13 \quad z = 6x - x^2y + 8y^2$$

$$\#17 \quad z = e^{xy}$$

$$\#21 \quad z = \ln \frac{x}{y}$$

$$\#23 \quad z = \ln(x^2 + y^2)$$

$$\#31 \quad z = \cos(xy)$$

Find f_x and f_y and evaluate at the given point

$$\#45 \quad f(x, y) = e^x y^2, (\ln 3, 2)$$

$$\#47 \quad f(x, y) = \cos(2x - y), \left(\frac{\pi}{4}, \frac{\pi}{3}\right)$$

Find the partial derivatives of the following and evaluate if a point is given

$$\#59 \quad w = \sqrt{x^2 + y^2 + z^2}$$

$$\#63 \quad f(x, y, z) = x^3 y z^2, (-2, 1, 2)$$

Find f_x and f_y in the following and determine points where $f_x = 0$ and $f_y = 0$

$$\#69 \quad f(x, y) = x^2 + xy + y^2 - 2x + 2y$$

$$\#74 \quad f(x, y) = 3x^3 - 12xy + y^3$$

Find the second partial derivatives for the following 77, 79 and 85

$$\#77 \quad z = 3xy^2$$

$$\#79 \quad z = x^4 - 2xy + 3y^3$$

$$\#85 \quad z = \cos(xy)$$

Pg. 937 Find the equation of the tangent plane at the given point for the following

$$\#7 \quad z = x^2 + y^2 + 3, (2, 1, 8)$$

$$\#9 \quad z = \sqrt{x^2 + y^2}, (3, 4, 5)$$

$$\#15 \quad x^2 + y^2 - 5z^2 = 15, (-4, -2, 1)$$

$$\#16 \quad x^2 + 2z^2 = y^2, (1, 3, -2)$$

Due: Wed. June 17, 2020.