Box #______
Math 60 Section 1
Homework 7
23 May 2018

Collaborators:

Colley 4.1 #9 First the first- and second-order Taylor polynomials for the given function f at the given point $\mathbf{a}$.

$$f(x,y) = \frac{1}{x^2+y^2+1}, \qquad \mathbf{a} = (1,-1).$$

$\blacksquare$

Colley 4.1 #10 First the first- and second-order Taylor polynomials for the given function f at the given point $\mathbf{a}$.

$$f(x, y) = e^{2x+y}, \qquad \mathbf{a} = (0, 0).$$

■

Colley 4.1 #28 Determine the total differential of

$$f(x,y) = x^2y^3.$$

■

Colley 4.1 #33(a) Use the fact that the total differential df approximates the incremental change Δf to provide estimates of the following quantities:

(a) $(7.07)^2(1.98)^3$.

■

Colley 4.2 #6 Identify and determine the nature of the critical points of

$$f(x,y) = y^4 - 2xy^2 + x^3 - x.$$

■

Colley 4.2 #12 Identify and determine the nature of the critical points of

$$f(x,y) = e^{-x}\left(x^2 + 3y^2\right).$$

■

$\boxed{\textbf{Colley 4.2 \#28}\quad \text{Show that the largest rectangular box having a fixed surface area must be a cube.}}$

$\blacksquare$

Colley 4.2 #29 What is the point on the plane $3x - 4y - z = 24$ is closest to the origin?

$\blacksquare$