Box #_____
Math 60 Section 1
Homework 1
15 May 2018

Collaborators:

Colley 2.1 #7 Find the domain and range of the following function.

$$\mathbf{f}(x,y) = \left(x+y, \frac{1}{y-1}, x^2+y^2\right)$$

■

Colley 2.1 #18 For the following function,

(a) determine several level curves of the given function f (make sure to indicate the height c of each curve);

(b) use the information obtained in part (a) to sketch the graph of f

$$f(x, y) = 4x^2 + 9y^2.$$

■

Colley 2.1 #19 For the following function,

(a) determine several level curves of the given function f (make sure to indicate the height c of each curve);

(b) use the information obtained in part (a) to sketch the graph of f

$$f(x, y) = xy.$$

■

Colley 2.1 #22 For the following function,

(a) determine several level curves of the given function f (make sure to indicate the height c of each curve);

(b) use the information obtained in part (a) to sketch the graph of f

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

■

Colley 2.1 #33 Describe the graph of $g(x, y, z)$ by computing some level surfaces. (If you prefer, use a computer to assist you.)

$$g(x, y, z) = x^2 + y^2 - z.$$

■

Colley 2.1 #40 Sketch or describe the surfaces in $\mathbb{R}^3$ determined by the following equation.

$$z = \frac{x^2}{4} - y^2.$$

■

Colley 2.2 #14 Evaluate the following limit, or explain why the limit fails to exist.

$$\lim_{(x,y)\to(0,0)} \frac{xy}{x^2+y^2}.$$

■