

Worksheet #10; date: 02/20/2018
MATH 53 Multivariable Calculus

1. (*Stewart 14.1.15*) Find and sketch the domain of the function.

$$f(x, y) = \ln(9 - x^2 - 9y^2).$$

2. (*Stewart 14.1.19*) Find and sketch the domain of the function.

$$f(x, y) = \frac{\sqrt{y - x^2}}{1 - x^2}.$$

3. (*Stewart 14.1.25*) Sketch the graph of the function.

$$f(x, y) = 10 - 4x - 5y.$$

4. (*Stewart 14.1.29*) Sketch the graph of the function.

$$f(x, y) = x^2 + 4y^2 + 1.$$

5. (*Stewart 14.1.49*) Draw a contour map of the function showing several level curves.

$$f(x, y) = ye^x.$$

6. (*Stewart 14.1.53*) Sketch both a contour map and a graph of the function and compare them.

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

7. Describe the level surfaces of the function.

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