

Name: \_\_\_\_\_

Panther ID: \_\_\_\_\_

Quiz 10/17

MAC-2313

Fall 2017

To receive credit you **MUST SHOW ALL YOUR WORK**. Answers which are not supported by work will not be considered.

1. (3 pts) Specify the domain of the function  $f(x, y) = \sqrt{4 - x^2 - y^2}$  and sketch its graph (domain 1pt, graph 2pts).

2. (4 pts) Compute the limit, if it exists. If it does not exist, give an explanation to justify.

$$\lim_{(x,y) \rightarrow (0,0)} \frac{\tan(x^2 + y^2)}{\sqrt{x^2 + y^2}}$$

3. (4 pts) Let  $z = \sin(y^2 - 4x)$ . Find each of the following:

(a)  $\frac{\partial z}{\partial x} =$

(b)  $\frac{\partial z}{\partial y} =$

(c) (1 pt) the rate of change of  $z$  with respect to  $x$  at the point  $(2, 1)$  with  $y$  held fixed.