

Solutions
 NAME: _____
 SECTION: _____

Math 2401 (D1-D3)
 9/17/2014

Quiz 3

[4 pts.]

1. Let the function:

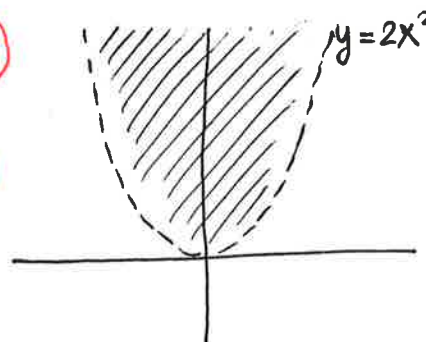
$$f(x, y) = \frac{1}{\sqrt{2x^2 - y}}$$

a). Complete the following statement: The domain of this function is the set of all points (x, y) that satisfy: ...

$$2x^2 - y > 0 \text{ or } y < 2x^2 \quad (1 \text{ pt.})$$

b). Write an equation for the boundary of this domain.

$$y = 2x^2 \quad (1 \text{ pt.})$$



c). Circle the correct answer: Is the domain:

1). Both open and closed

2). Closed

3). Open (1 pt.)

4). Neither

d). Is the domain bounded? Circle one: Yes No (1 pt.)

[2 pts.]

2. Complete the following statement: The domain of the function $f(x, y, z) = \ln(x + y + z)$ is the set of all points (x, y, z) that satisfy...

$$x + y + z > 0 \quad (2 \text{ pts.})$$

[4 pts.]

3. Find an equation for the level surface of the function $f(x, y, z) = \sqrt{x + y} + \ln(z)$ that goes through the point $(4, -3, e^{-5})$.

$$f(4, -3, e^{-5}) = \sqrt{4 + (-3)} + \ln(e^{-5}) \quad (1.5 \text{ pts.})$$

$$= \sqrt{1} + (-5) = -4 \quad (1 \text{ pt.})$$

Level Surface Equation: $\boxed{\sqrt{x+y} + \ln(z) = -4} \quad (1.5 \text{ pts.})$