Math 201 quiz 2A

(2-1, 2-2)

Show your work! No calculators/notes!

Section ______ Name ______

1. (3pts) Determine whether the following equation represents a function with independent variable $x$.

$$y^2 - x = 9$$

$$y^2 = x + 9$$

$$y = \pm \sqrt{x + 9}$$

No it's NOT a function

2. (7pts) For $f(x) = x^2 - 3x + 9$, find $\frac{f(a+h) - f(a)}{h}$ and simplify.

$$\frac{(a+h)^2 - 3(a+h) + 9 - (a^2 - 3a + 9)}{h}$$

$$= \frac{a^2 + 2ah + h^2 - 3a - 3h + 9 - a^2 + 3a - 9}{h}$$

$$= \frac{2ah + h^2 - 3h}{h}$$

$$= \frac{4h(2a + h - 3)}{h} = \frac{2a + h - 3}{h}$$
3. (3pts) Find the domain of the following function:

\[ H(x) = \frac{5}{\sqrt{2-2x}} \]

\[ 2-2x > 0 \]

\[ -2x > -2 \]

\[ x < 1 \]

or \((-\infty, 1)\)

4. (7pts) For \( f(x) = 3 - 2\sqrt{x} \), indicate how the graph of this function is related to the graph of one of the six basic functions. Sketch the graph.

\[ y = \sqrt{x} \]  

\[ \text{Vertical stretch by 2} \]

\[ \text{Reflection about x-axis} \]

\[ \text{Up 3} \]

\[ y = 3 - 2\sqrt{x} \]