Name:_____ Date:_____

**HW Pre Calculus 12 Section 2.2 Graphing $y = \sqrt{f(x)}$**

1. Suppose the coordinate (a,b) is on the function $y = f(x)$, what is this coordinate on $y = \sqrt{f(x)}$?

2. When taking the reciprocal of a function, what happens to all the points where the y-coordinate is negative? Explain:

3. Do the x-coordinates of a function change when you take the square root of the function? Explain:

4. When you take the square root of a linear function, what does the function become? Explain:

5. When you take the square root of a quadratic function, what does the function become? Explain:

6. How do I know whether if the square root of a quadratic function will become either a semi circle or a semi hyperbola? Explain:

7. What is a vertical and horizontal hyperbola?

8. Graph the following and then determine the domain and range for each of the following functions:

| | |
|---|---|
| a) $y=\sqrt{x^2-6}$ | b) $y=\sqrt{x^2+6}$ |
| c) $y=\sqrt{-x^2+9}$ | d) $y=\sqrt{-x^2+16}$ |
| e) $y=\sqrt{(x-2)^2-25}$ | f) $y=\sqrt{2(x+3)^2-18}$ |
| g) $y=\sqrt{-2(x+3)^2+8}$ | h) $y=\sqrt{3x^2+12x-15}$ |

9. Indicate the transformations in order for each of the following: Then indicate how the coordinates (a,b) will change after each transformation:

| | |
|---|---|
| a) $x = -f(y)$ | b) $-x = -f(y)$ |
| c) $-x+1 = f(2-y)$ | d) $4-x = f(3-y)$ |