Name:_____ Date:_____

HW Pre Calculus 12 Section 2.2 Graphing the Square Root of a Function: $y=\sqrt{f(x)}$:

1. Given each of the following equations, indicate whether if there are any x-intercepts OR not. If there are, indicate how many and where they are:

a) $y=3x-8$ 1 x-int	b) $y=\frac{2}{3}x+\frac{11}{5}$ 1 x-int	c) $y=3x^2-8$ 2 x-int
d) $y=-2x^2-5$ 0 x-int	e) $y=-2(x+4)^2+18$ 2 x-int	f) $y=0.5(x-4)^2-4.5$ 2 x-int
g) $y=4x^2-5x-2$ $\sqrt{25+32}$ 2 x-int	h) $y=-3x^2+5x-9$ $\sqrt{25-108}$ 0 x-int	I) $y=7x^2-11x-2$ $\sqrt{121+56}$ 2 x-int

2. When we take the square root of a function, which coordinate changes and which one will stay the same? Explain: The y coordinate changes. The x coordinate changes and all the y coordinates change into its square root

3. Suppose the coordinate (a,b) is on the function $y=f(x)$, where "b < 0", what will this coordinate become in the function $y=\sqrt{f(x)}$? Explain:

$(a, \sqrt{b})$

4. Suppose the coordinate (a,1) is on the function $y=f(x)$, what will this coordinate become in the function $y=\sqrt{f(x)}$? Explain:

$(a, 1)$ $f(x)=1$ $\sqrt{f(x)}=\sqrt{1}=1$

5. When we perform the transformation from $y=f(x)\rightarrow y=\sqrt{f(x)}$, how are the "x" and "y" coordinated changed? Explain:

x coordinates stay the same whereas the y unit gets √ ed. If the y unit is negative then it disappears.

6. Match each equation with the corresponding graph:

i) $y = \sqrt{x^2 - 9}$

ii) $y = \sqrt{-x^2 + 9}$

iii) $y = -\sqrt{-x^2 + 9}$

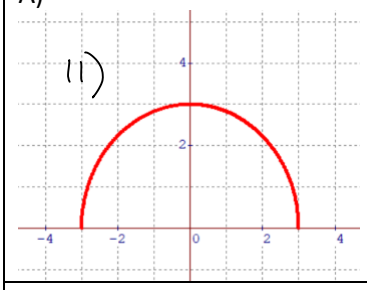
iv) $y = \sqrt{x^2 + 9}$

v) $y = \sqrt{2x^2 - 4}$

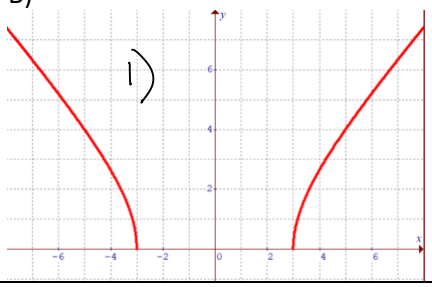
vi) $y = -\sqrt{2x^2 - 4}$

vii) $y = -2\sqrt{-x^2 - 9}$

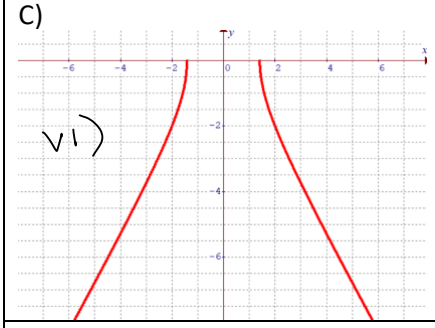
A)



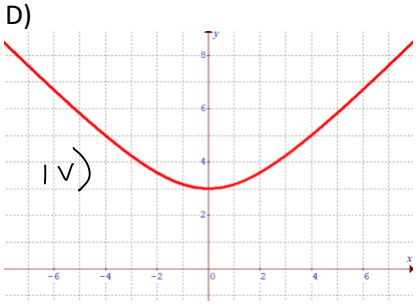
B)



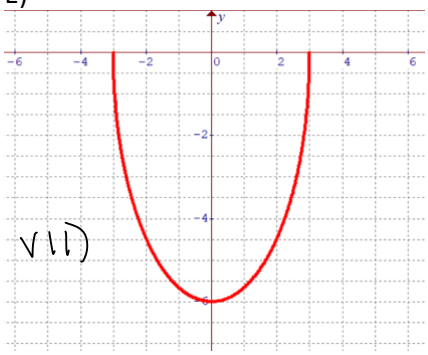
C)



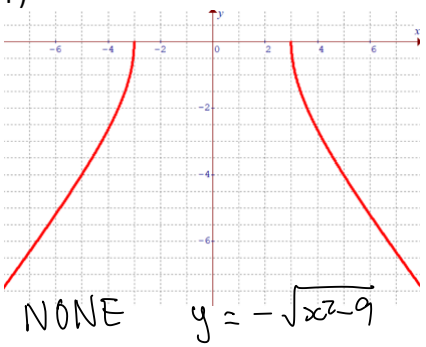
D)



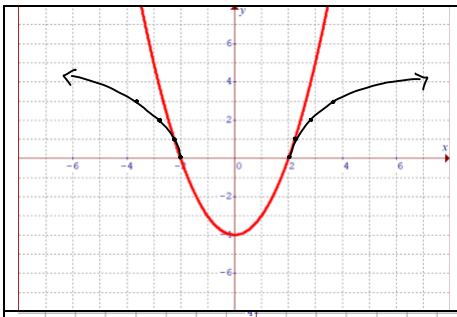
E)

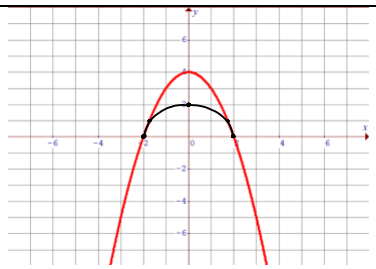


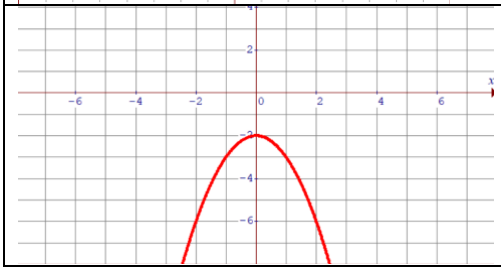
F)



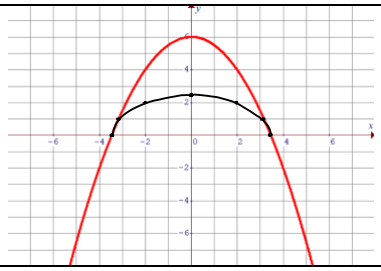
7. Given the graphs of $y = f(x)$, draw the graphs of $y = \sqrt{f(x)}$





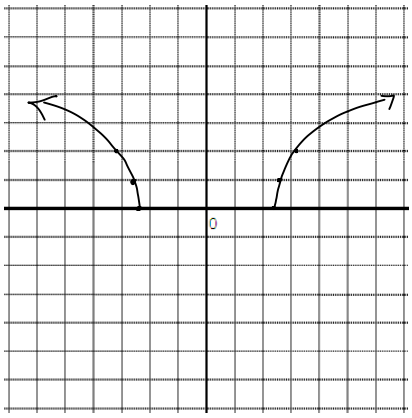


N/A



8. Graph the following and then determine the domain and range for each of the following functions. Show all your work and steps::

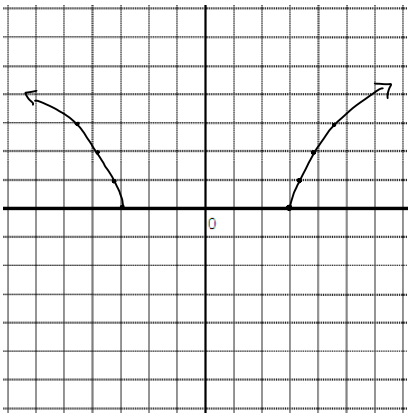
a) $y = \sqrt{x^2 - 6}$



D: $(x \mid x \in \mathbb{R},\ x \leq -2.4495,\ x \geq 2.4495)$

R: $(y \mid y \in \mathbb{R},\ y \geq 0$

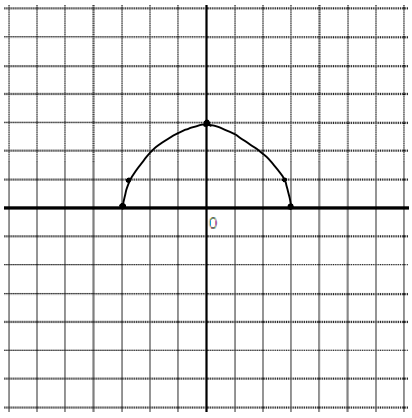
b) $y = \sqrt{x^2 - 9}$



D: $(x \mid x \in \mathbb{R},\ x \leq -3,\ x \geq 3)$

R: $(y \mid y \in \mathbb{R},\ y \geq 0)$

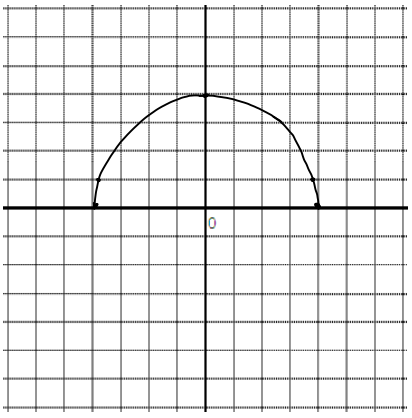
c) $y = \sqrt{-x^2 + 9}$



D: $(x \mid x \in \mathbb{R},\ -3 \leq x \leq 3)$

R: $(y \mid y \in \mathbb{R},\ 0 \leq y \leq 3)$

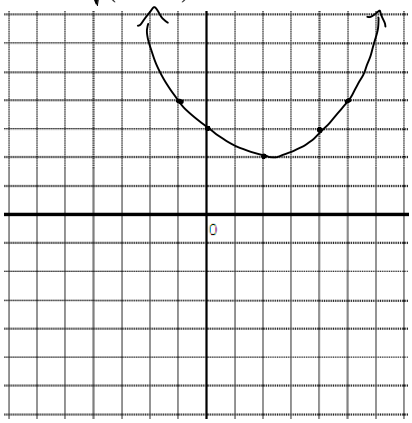
d) $y = \sqrt{-x^2 + 16}$



D: $(x \mid x \in \mathbb{R},\ -4 \leq x \leq 4)$

R: $(y \mid y \in \mathbb{R},\ 0 \leq y \leq 4)$

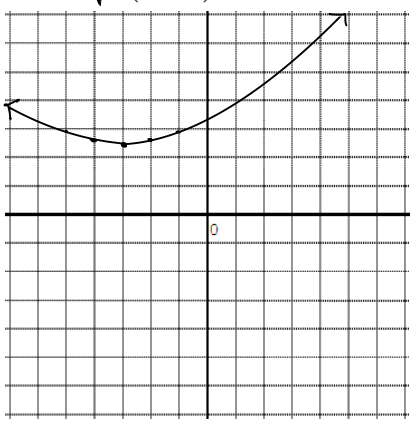
e) $y = \sqrt{(x-2)^2 + 4}$



D: $(x \mid x \in \mathbb{R})$

R: $(y \mid y \in \mathbb{R},\ y \geq 2)$

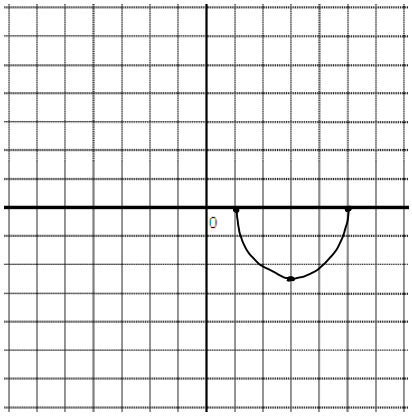
f) $y = \sqrt{2(x+3)^2 + 6}$



D: $(x \mid x \in \mathbb{R})$

R: $(y \mid y \in \mathbb{R},\ y \geq \sqrt{6})$

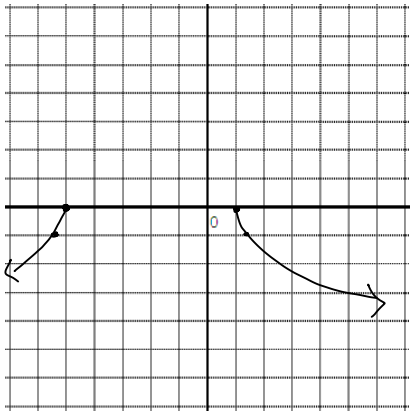
g) $y = -\sqrt{-2(x+3)^2 + 8}$



D: $(x \mid x \in \mathbb{R},\ 1 \leq x \leq 5)$

R: $(y \mid y \in \mathbb{R},\ -\sqrt{8} \leq y \leq 0)$

h) $y = -\sqrt{3x^2 + 12x - 15}$



D: $(x \mid x \in \mathbb{R},\ x \leq -5,\ x \geq 1)$

R: $(y \mid y \in \mathbb{R},\ y \leq 0)$