Math-2   Name_____ ID: 1
SM2 HW #4-5 (Unit 4 Test Preview HW)   Date_____ Period____
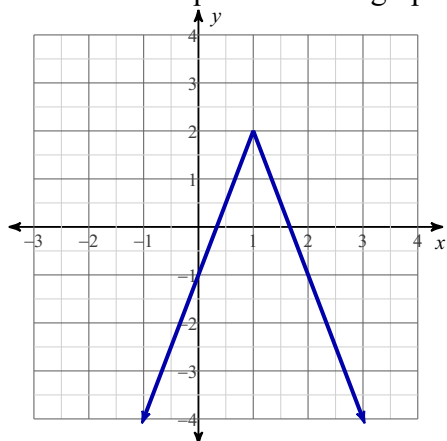
1) What is the vertex?

$y = -2|x - 1| + 4$

2) Describe the transformation of the absolute value parent function.

$y = 3 - 2|x + 4| - 1$

3) Write an absolute value function that is the parent function that has been reflected across the x-axis, vertically stretched by a factor of 5, shifted right 2, and up 1.

4) Write the slope-intercept form of the equation of the line that passes through: $(-2, 1)$ and $(-3, 3)$

5) What is the equation of the graph?

6) What is the equation of the graph?
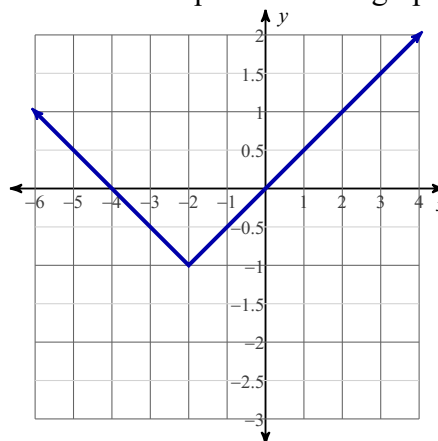
7) Convert the following x-y pairs into "function notation".

(-2, 3), (0, -5)

8)

9) Compare the following equation to the parent function for quadratics $y = x^2$.
a) Give the location of the vertex (x,y).
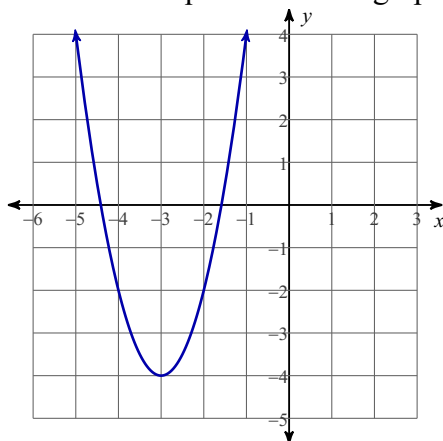b) Identify the transformations that have been applied to the parent function.

$y = -3x^2 + 1$

10) Compare the following equation to the parent function for quadratics $y = x^2$.
a) Give the location of the vertex (x,y).
b) Identify the transformations that have been applied to the parent function.

$y = 4(x - 1)^2 - 2$

11) What is the equation for the graph?
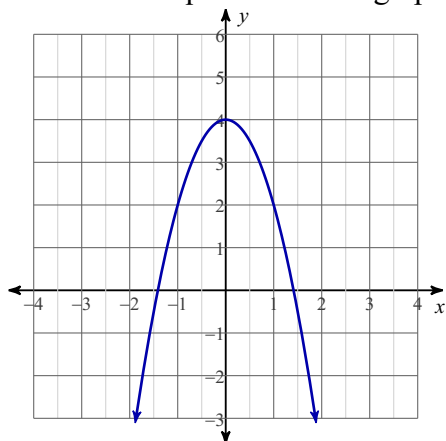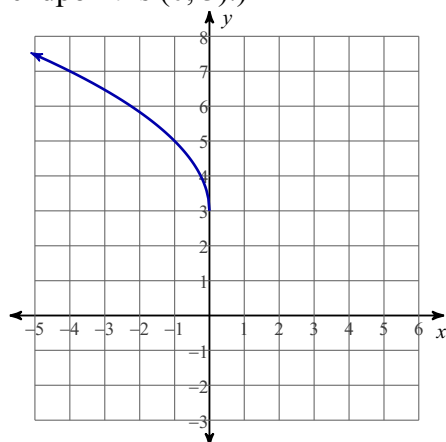

12) What is the equation for the graph?

13) What transformations have been applied to $y = \sqrt{x}$?
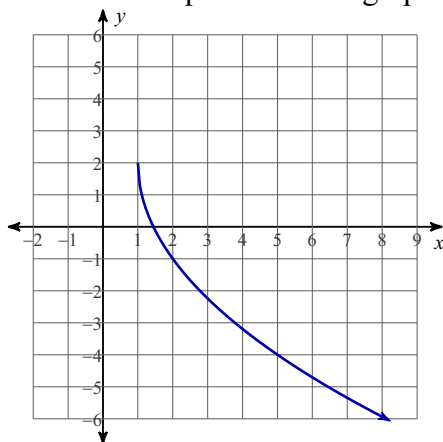
$$y = -2\sqrt{x-3} - 5$$

14) a) What is the domain?
    b) What is the range?
    c) What is the "endpoint"?

$$y = -3 - 2\sqrt{x+1}$$

15) What is the equation of the graph? (The endpoint is (0, 3).)
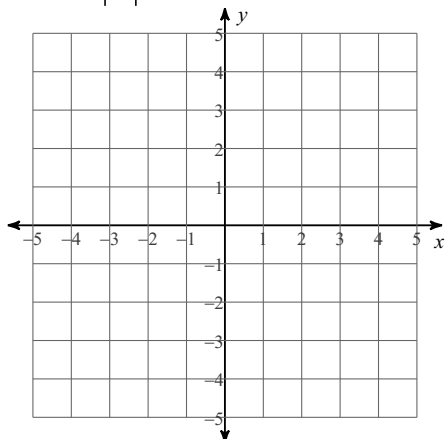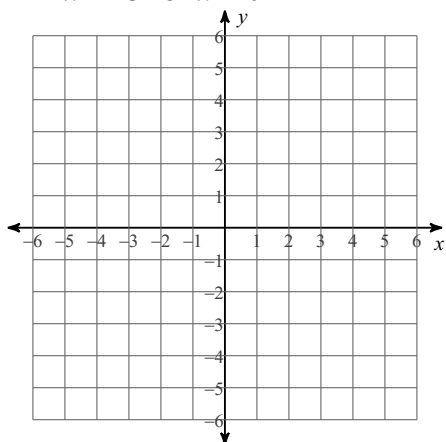

16) What is the equation of the graph?

17) Graph the following piece-wise defined function:

$$y = \begin{cases} -x + 2 & \text{for } x \geq 0 \\ -2|x| - 3 & \text{for } x < 0 \end{cases}$$

18) Graph the following piece-wise defined function:

$$y = \begin{cases} -2x + 3 & \text{for } x \geq 0 \\ x^2 - 3 & \text{for } x < 0 \end{cases}$$

19) a) Where is the function increasing?
   b) Where is the function decreasing?
   c) Where is the function positive?
   d) Is the function even, odd, or neither?
   e) Where are the extrema and what type are they?
   f) How is it related to its parent function?
   g) What is the end behavior? (use "infinity notation")
   h) What is the domain?
   i) What is the range?
   j) What is the average rate of change between x = 1 and x = 3?
   k) What is the equation of the graph?
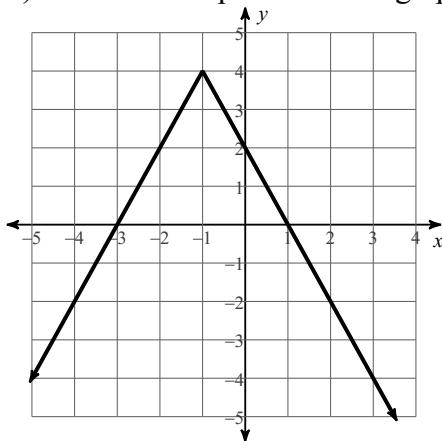
20) a) Where is the function increasing?
   b) Where is the function decreasing?
   c) Where is the function positive?
   d) Is the function even, odd, or neither?
   e) Where are the extrema and what type are they?
   f) How is it related to its parent function?
   g) What is the end behavior? (use "infinity notation")
   h) What is the domain?
   i) What is the range?
   j) What is the average rate of change between x = 1 and x = 5?
   k) What is the equation of the graph?

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