

## SM2-A HW #5-10 (Review)

Date \_\_\_\_\_ Period \_\_\_\_\_

- 1) The height  $h(t)$ , in feet, of a “weeping willow” firework display,  $t$  seconds after having been launched from an 120-ft high rooftop, is given by  $h(t) = -16t^2 + 64t + 120$ . a) What is its maximum height?  
b) What time after it was launched did it reach maximum height?
- 2) Suppose that a flare is launched upward with an initial velocity of 80 ft/sec from the top of a 20 story building (height above ground of 200 feet). Its height in feet,  $h(t)$ , after  $t$  seconds is given by:  
 $h(t) = -16t^2 + 80t + 200$ ,  
a) When will the flare reach its maximum height?  
b) What is the maximum height the flare reaches?  
c) How long after it was launched will it take for the flare to reach the ground?
- 3) The Rainbow Bridge Arch at Lake Powell is the world’s highest natural arch at 256 feet. The height of an object that has been dropped from the top of the arch can be modeled by the equation:  
 $h(t) = -16t^2 + 256$  where “ $t$ ” is the time in seconds and “ $h(t)$ ” is the height in feet. How long does it take for the object to reach the ground?

- a) Factor each trinomial (provide the intercept form of the equation).**  
**b) Determine the "zeroes" of the equation (remember the Zero Product Property!)**

4)  $x^2 - 2x - 24 = 0$

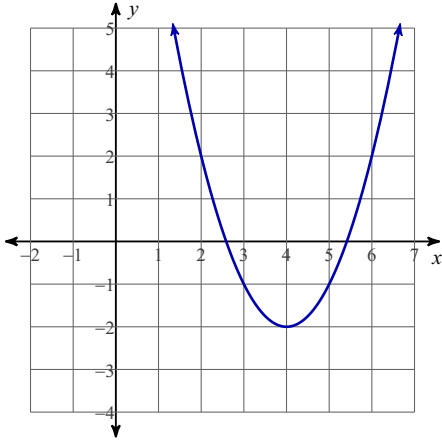
5)  $x^2 + 5x - 6 = 0$

**Find the "zeroes" of the equations by finding square roots.**

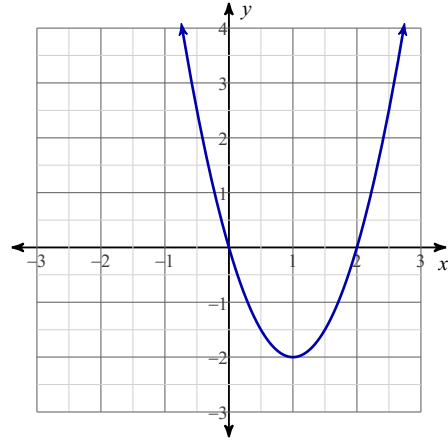
6)  $9n^2 = 36$

7)  $r^2 - 3 = -3$

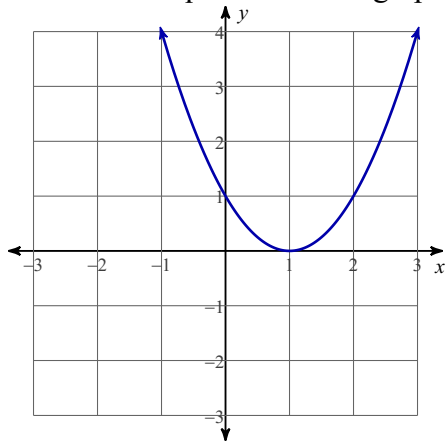
8) What is the equation for the graph?



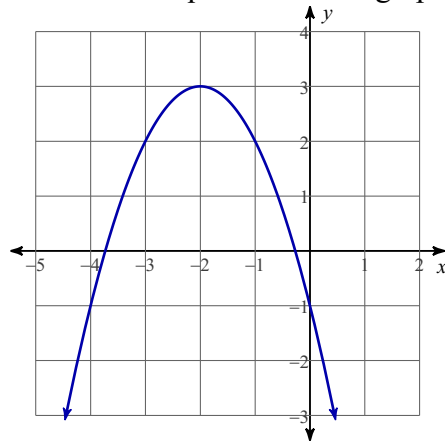
9) What is the equation for the graph?



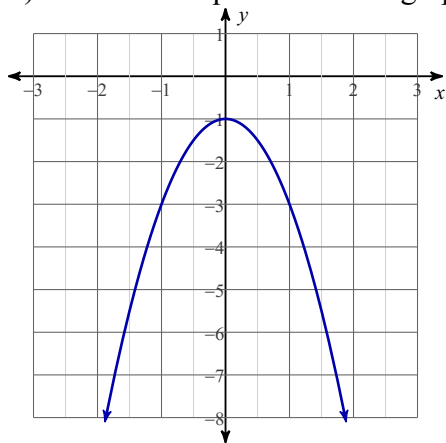
10) What is the equation for the graph?



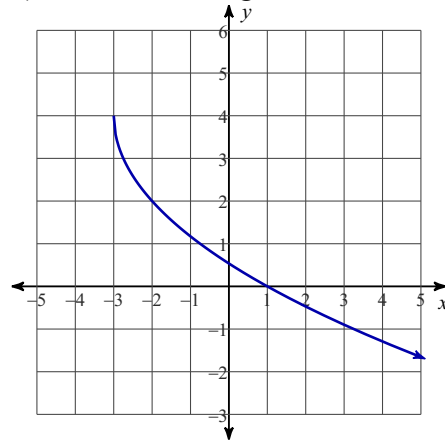
11) What is the equation for the graph?



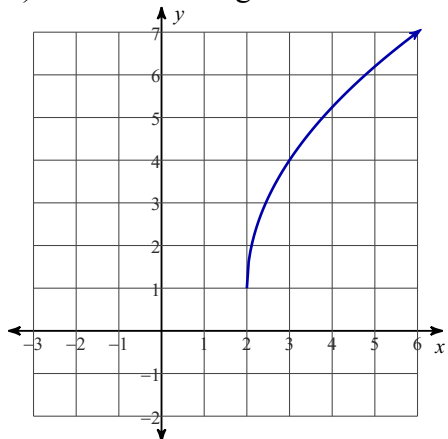
12) a) Identify the transformations that been applied to the parent function  $y = x^2$   
 b) what is the equation for the graph?



13) a) What is the equation of the graph?  
 b) What is the domain?  
 c) What is the range?



- 14) a) What is the equation of the graph?  
 b) What is the domain?  
 c) What is the range?



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

$$y = 5 - 2\sqrt{x + 1}$$

- 16) The pattern we look for when determining how a parent function has been transformed is very similar for each function.

Square function:  $y = a(x - h)^2 + k$

Absolute Value function:  $y = a|x - h| + k$

Square root function:  $y = a\sqrt{x - h} + k$

Rewrite the each of the above functions to show: reflect (x-axis), VSF-3, left 2, up 4:

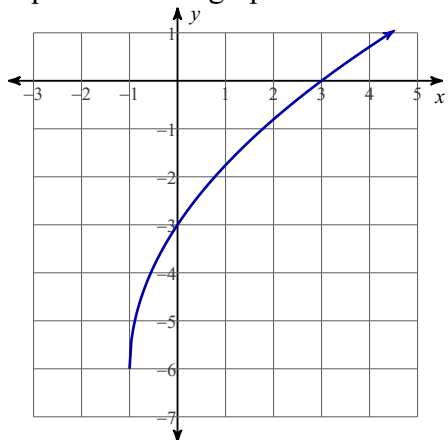
- a) square function:  
 b) absolute value function  
 c) square root function

**Write the slope-intercept form of the equation of the line through the given points.**

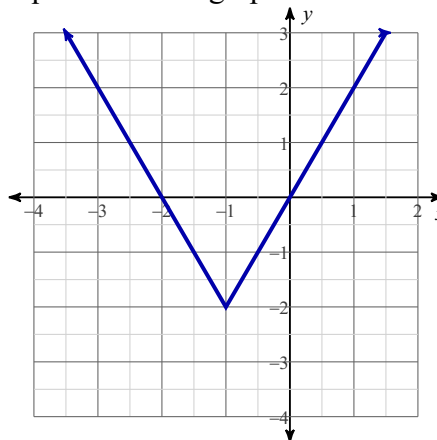
- 17) through: (5, -3) and (4, 2)

- 18) through: (2, -3) and (3, 3)

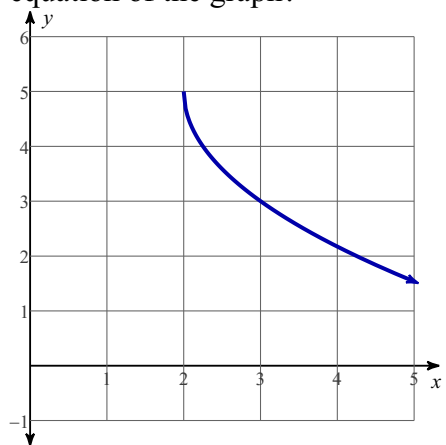
- 19) a) What is the endpoint? (b) What is the equation of the graph?



- 20) a) What is the vertex? (b) What is the equation of the graph?



21) a) What is the endpoint? (b) What is the equation of the graph?



22) a) What is the vertex? (b) What is the equation of the graph?

