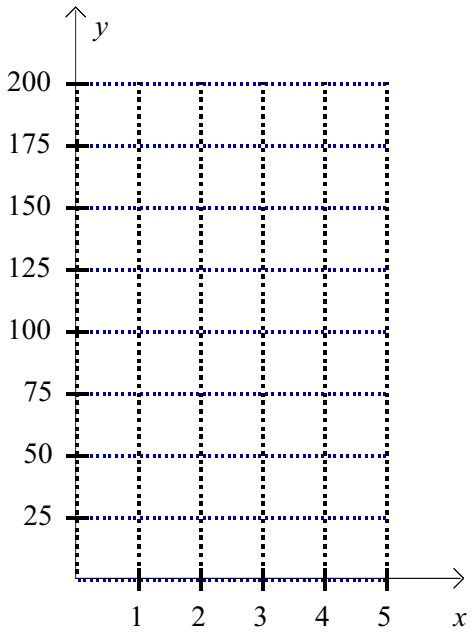
Name: _____ Date: _____

Scarsdale Middle School Popham House Mr. Weiss

Level 3 Quiz 70 points

1) A rental car company charges $75 for the first day and $50 for each additional 2-day period after that.

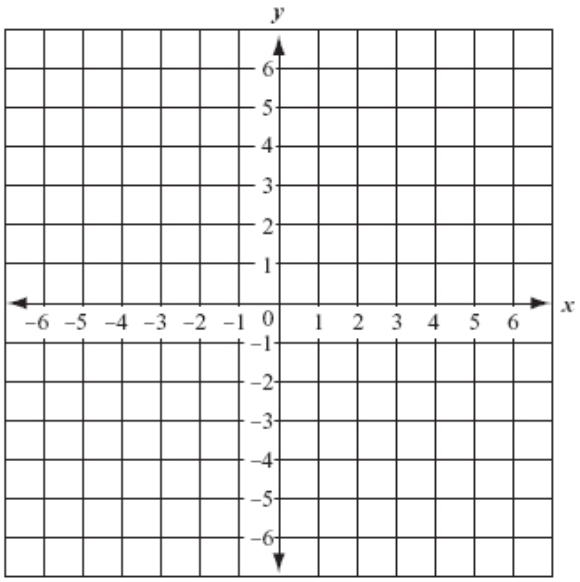
a. Using x as the number of days and y as the cost of the rental car, graph the step-function that represents the relationship between x and y.



b. What would be the cost of renting a car for 11 days?

2) a. Graph the function $y = x^2 - 4$

x	y
–3	
–2	
–1	
0	
1	
2	
3	



b. What is the equation of the axis of symmetry of the graph?

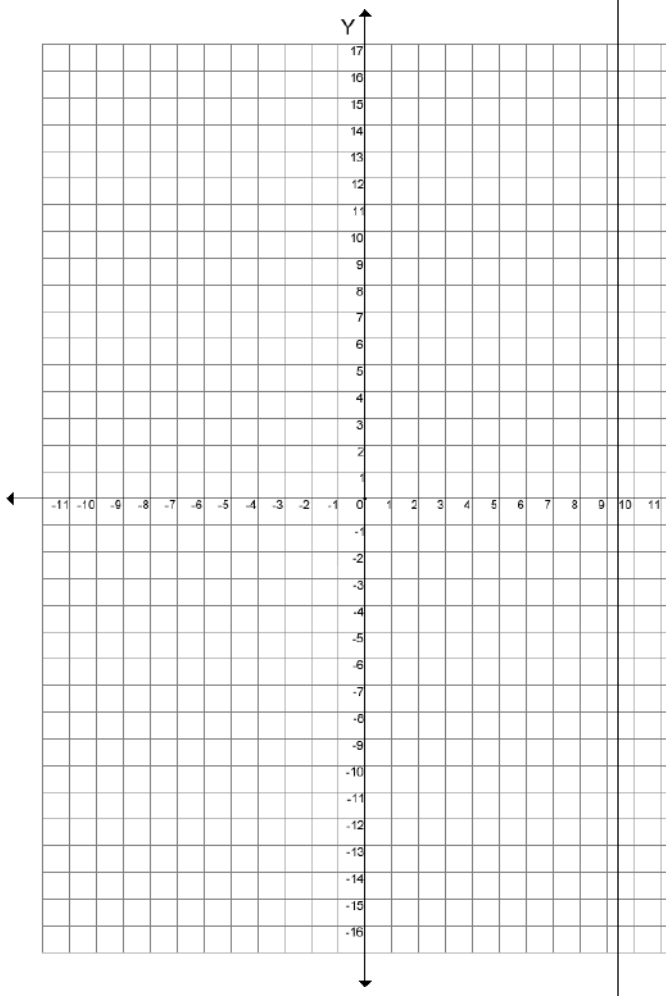
c. What are the coordinates of the vertex?

d. What is the range of this function?

3) a. Graph the function $y = -\frac{1}{2}x^2 - 2x + 5$ b. What is the equation of the axis of symmetry of the graph?

c. What are the coordinates of the vertex? d. What is the range of this function?

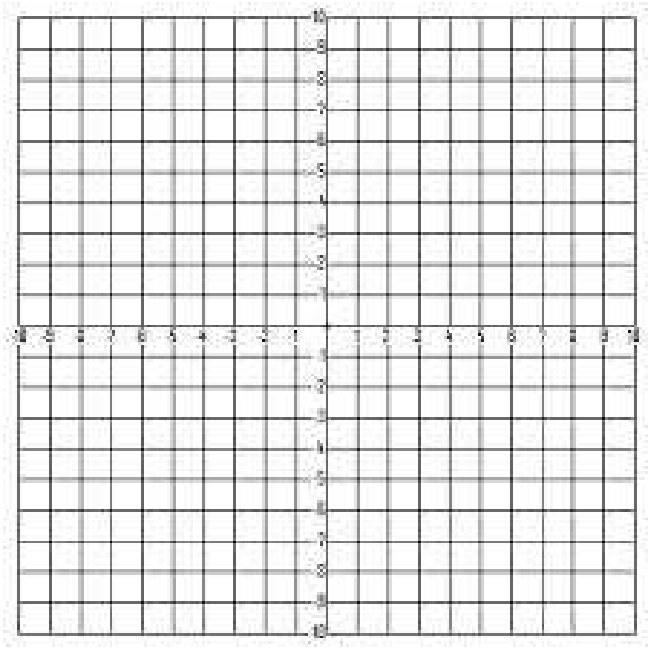
x	$y = -\frac{1}{2}x^2 - 2x + 5$	y
–6		
–4		
–2		
0		
2		
4		
6		



4) a) Graph $y = -3^x$

b) What is the range of this function?

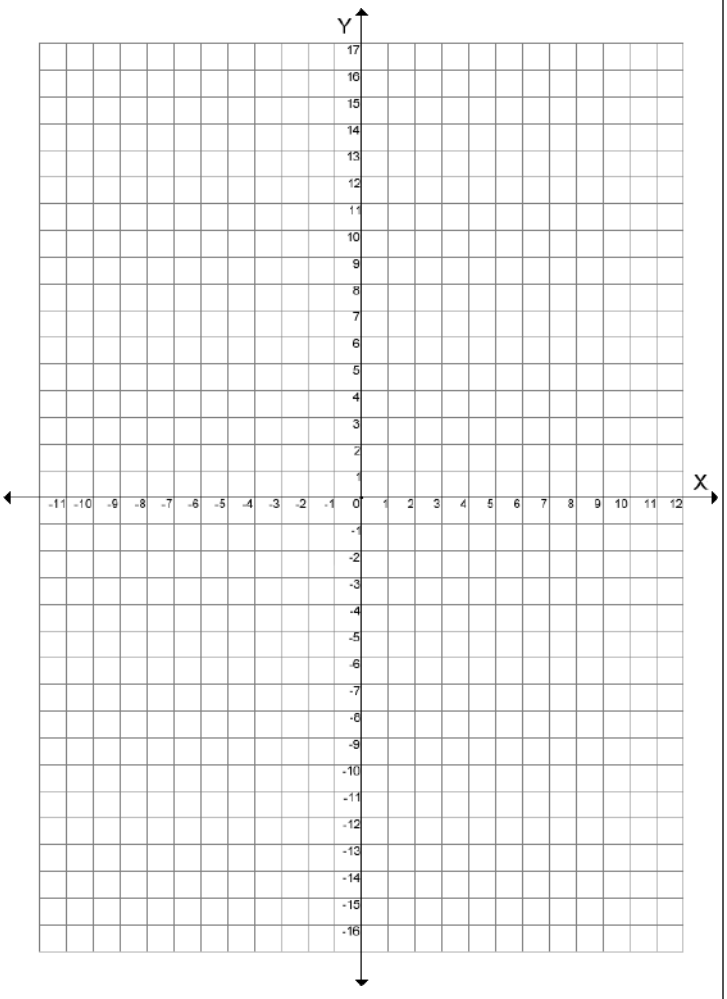
x	y
–2	
–1	
0	
1	
2	



5) a) Graph $y = \left(\frac{1}{2}\right)^x$

b) What is the range of this function?

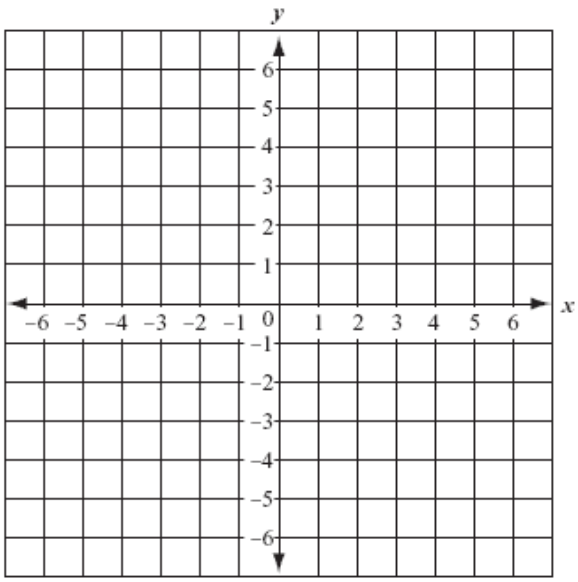
x	y
–4	
–3	
–2	
–1	
0	
1	
2	
3	
4	



6) a. Graph $y = \sqrt{x+3}$

x	y

b. What is the range of this function?

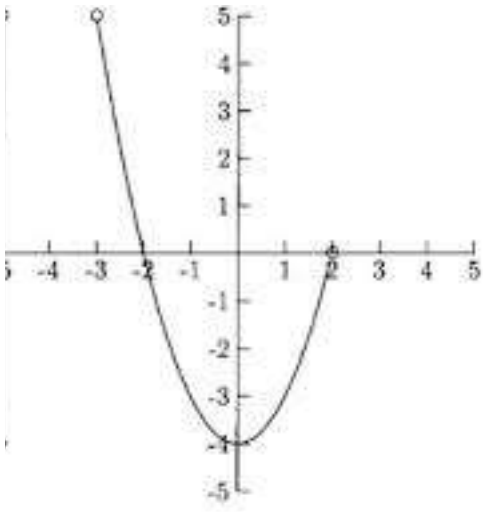


7) What will be the value of $25,000 after it's invested at 12% interest compounded quarterly for 20 years? *Round your answer to the nearest cent.*

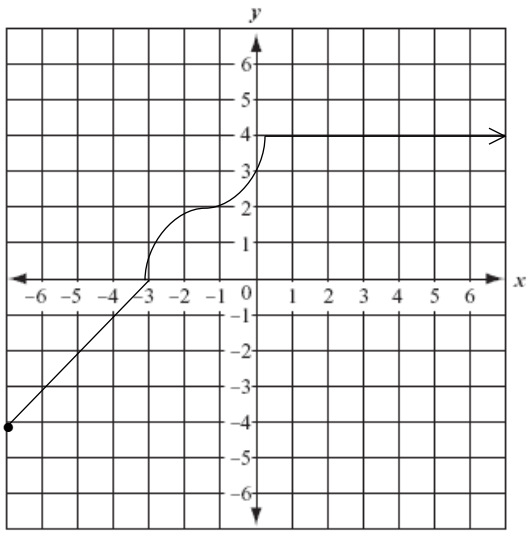
8) Identify the domain and range of the function graphed. Use an inequality for each (not interval notation).

Domain:

Range:



9) Identify the domain and range of the function graphed. Use interval notation for each.



Domain:

Range:

10) Multiple Choice. Which parabola opens upward (has a minimum point) and is the widest?

(A) $y = 4x^2 + 5$ (B) $y = -2x^2 + 5$ (C) $y = \frac{1}{3}x^2 + 5$ (D) $y = -\frac{1}{2}x^2 + 5$

11) Translate the following domain into interval notation:

{all real numbers except 8}

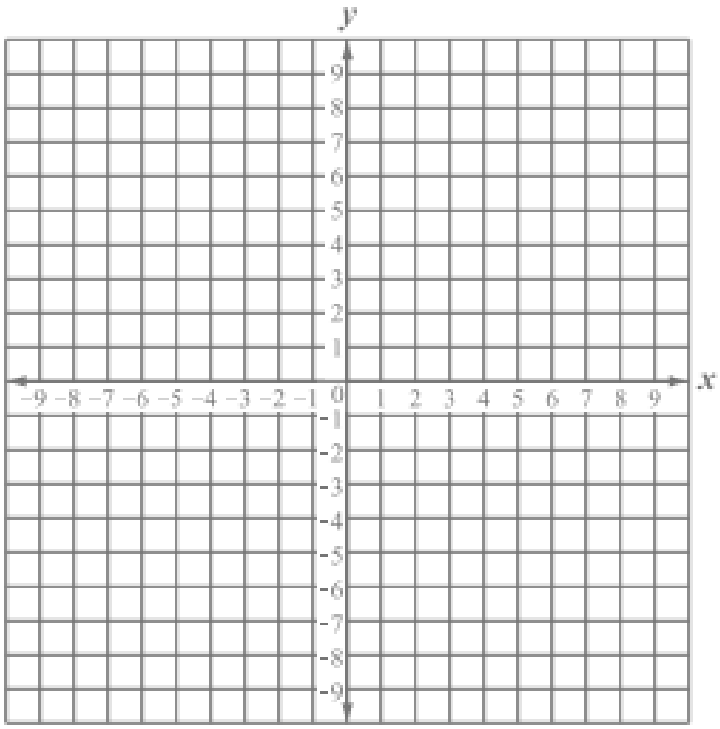
12) An object is dropped from a height of 400 feet. The function $h = -16t^2 + 400$ gives the height of the object h after t seconds. How long does the object take to hit the ground?

13) Graph the following piecewise function.

$(-\infty,-2)$ $y = \frac{1}{2}x^2 + 4x + 8$

$[-2,1)$ $y = -3x - 4$

$[1,\infty)$ $y = -7$



x	$y = \frac{1}{2}x^2 + 4x + 8$	y

$y = -3x - 4$

x	y