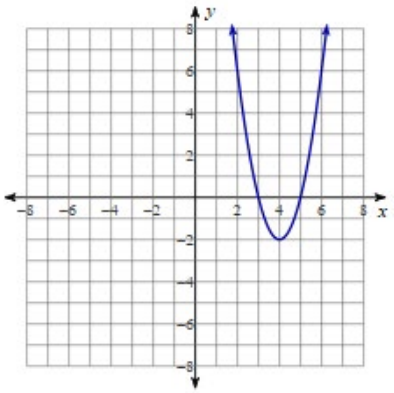
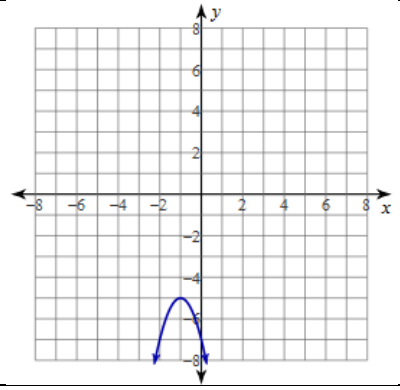
Name: _____

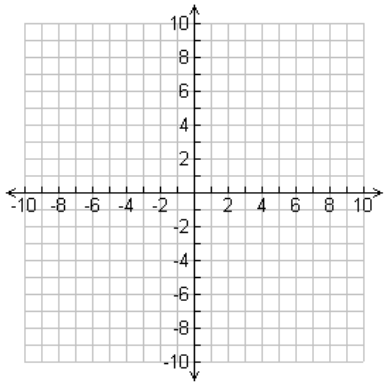
SM2 4.2: Graphing Functions

Identify each of the following characteristics for each quadratic function.

1)		Domain: _____ Range: _____ Vertex: _____ Roots: _____ Positive: _____ Negative: _____
2)		Domain: _____ Range: _____ Vertex: _____ Increasing: _____ Decreasing: _____ Positive: _____ Negative: _____

Graph the indicated function by using a table of values. Then identify the listed properties

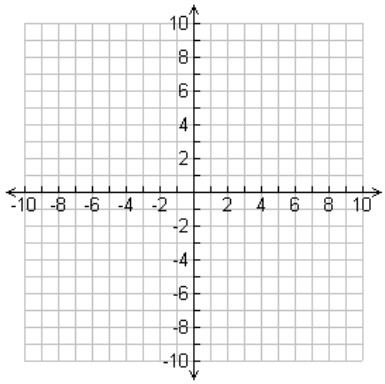
3) $f(x) = \frac{1}{2}x - 2$



x	y

Domain: _____
Range: _____
Vertex: _____
Increasing: _____
Decreasing: _____
x-intercept(s): _____
Positive: _____
Negative: _____
y-intercept: _____

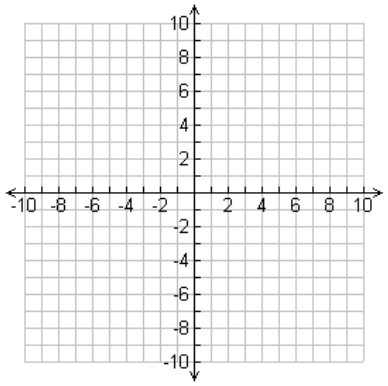
4) $g(x) = 2x^2 - 3x + 5$



x	y

Domain: _____
Range: _____
Vertex: _____
Increasing: _____
Decreasing: _____
x-intercept(s): _____
Positive: _____
Negative: _____
y-intercept: _____

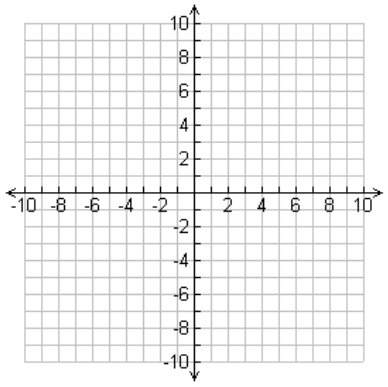
5) $h(x) = -|x + 2| - 3$



x	y

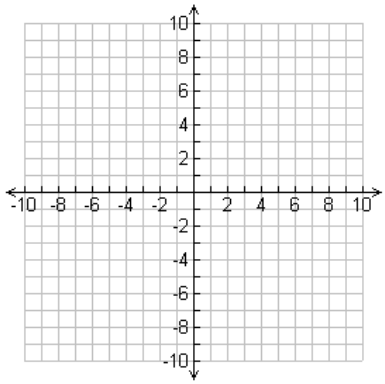
Domain: _____
Range: _____
Vertex: _____
Increasing: _____
Decreasing: _____
x-intercept(s): _____
Positive: _____
Negative: _____
y-intercept: _____

6) $f(x) = x^2 - 4$



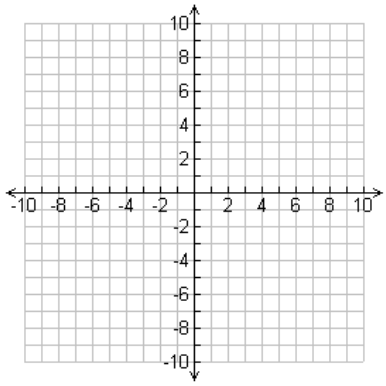
x	y

7) $g(x) = (x-4)^2$



x	y

8) $h(x) = 2|x-4|$

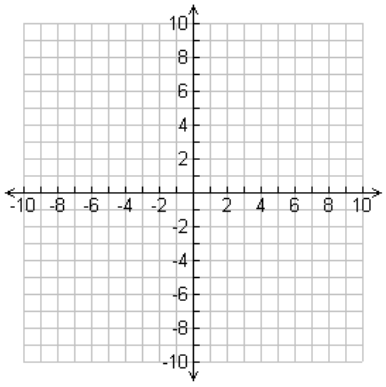


x	y

Sketch the graph of each quadratic function by making a table of values using the vertex formula $x = -\frac{b}{2a}$ and plotting points from the vertex.

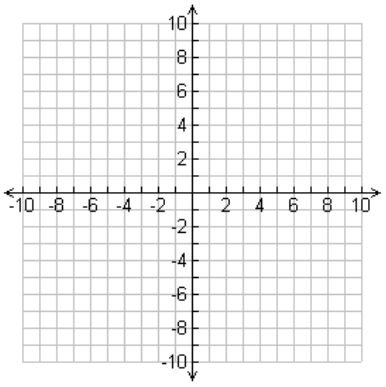
9) $y = -x^2 - 2x + 3$

x	y



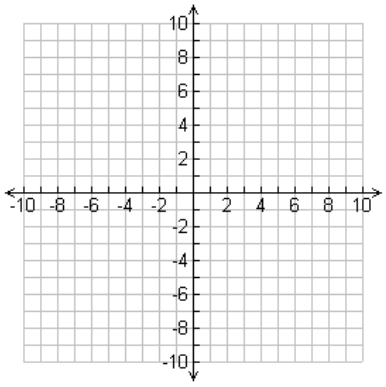
10) $f(x) = x^2 - 6x + 10$

x	y



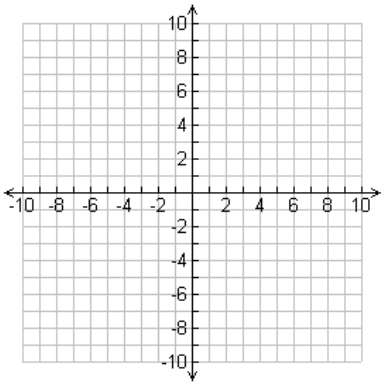
11) $g(x) = 2x^2 - 2x - 6$

x	y



12) $y = -x^2 + 4$

x	y



Find the average rate of change of the function over the specified interval.

13) $y = x^2 - 4x + 5, [0,4]$

14) $y = -x^2 + 2x - 8, [5,7]$

15) Which of the following quadratic functions has a larger y-intercept? Justify your response.

$f(x) = -2x^2 + 4x - 3$

x	$g(x)$
-2	8
-1	5
0	4

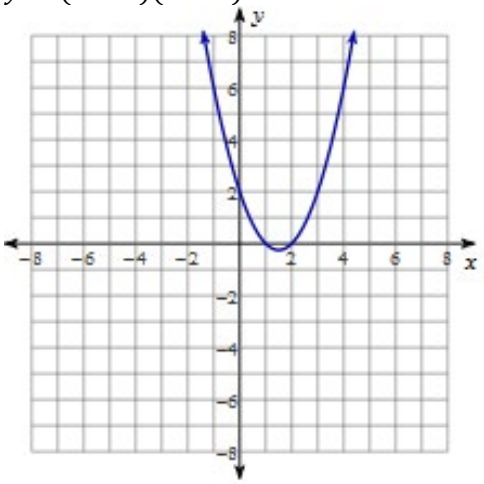
16) Which of these quadratic functions has a vertex that is closer to the x-axis? Justify your response.

$f(x) = 10x^2 - 40x$

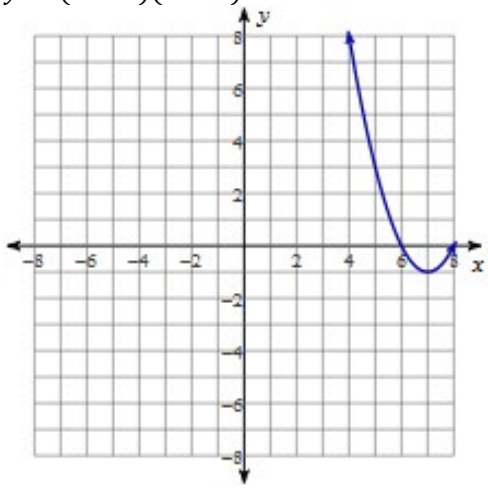
x	$g(x)$
2	11
3	9
4	11

Find the roots of the quadratic functions from the given graph.

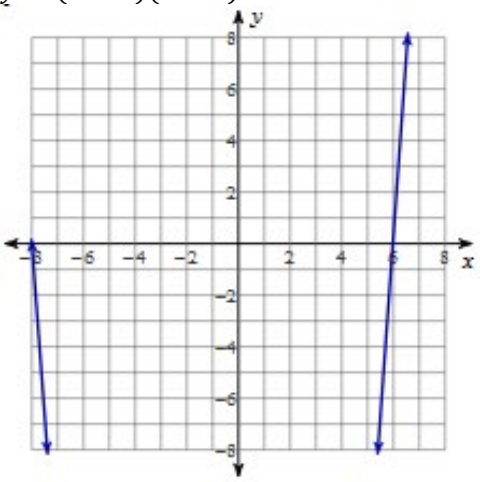
17) $y = (x - 1)(x - 2)$



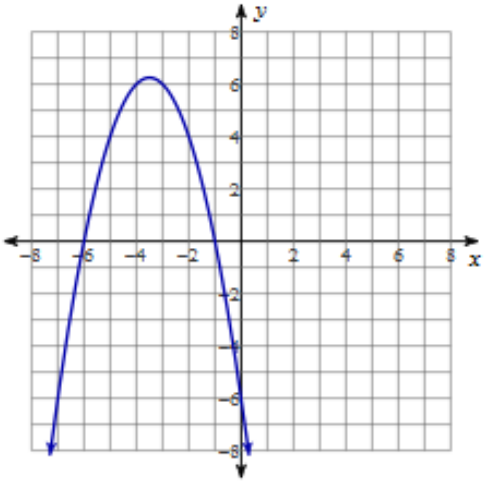
18) $y = (x - 6)(x - 8)$



19) $y = (x + 8)(x - 6)$



20) $y = -(x + 6)(x + 1)$



21) In problems 22-25, how does the form of the equation relate to the roots of the graph?

22) What are the roots of $y = (x - 7)(x + 10)$?