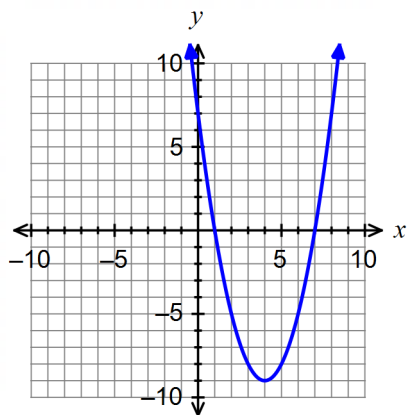Name:_____   Period:_____

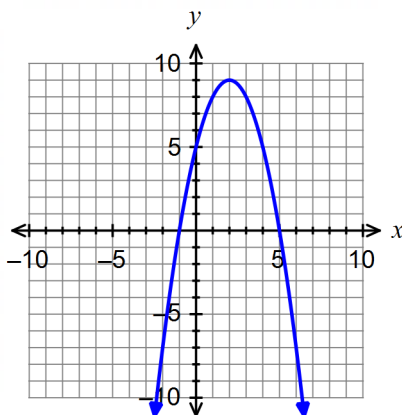# SM2 Quadratic Graphs Test Review

For each equation, fill in at least two boxes in each row AND choose the letter of the graph below the table that matches the equation.

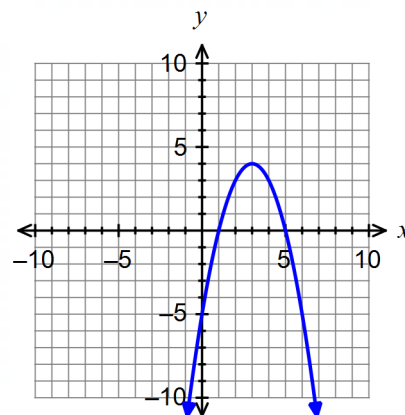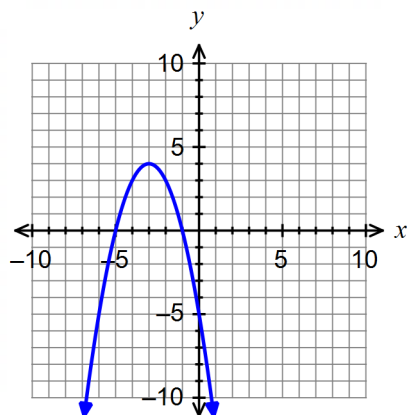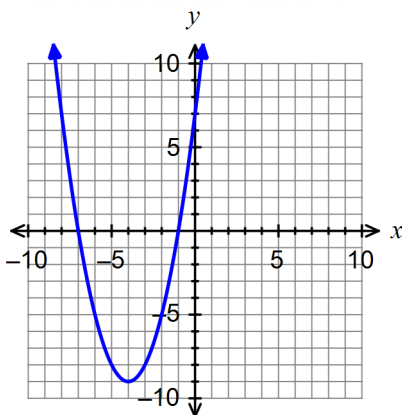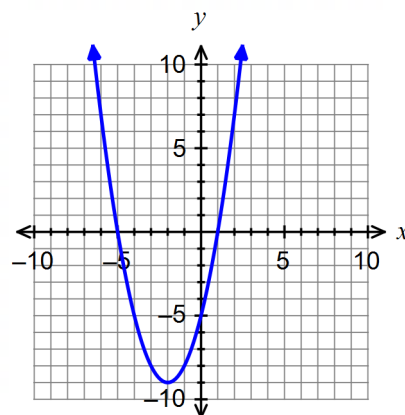|	Direction of Opening	Vertex	y-intercept	Zeros	Letter of Correct Graph
1. $y = (x+2)^2 - 9$					
2. $y = -(x-2)^2 + 9$					
3. $y = -(x-1)(x-5)$					
4. $y = -(x+1)(x+5)$					
5. $y = x^2 - 8x + 7$					
6. $y = x^2 + 8x + 7$					

A.

B.

C.

D.

E.

F.

For each function, find the vertex and *y*-intercept of the graph. Show all your work!

7. $y = 2(x+3)^2 - 7$

8. $f(x) = -x^2 + 12x - 33$

9. $y = \dfrac{1}{5}(x+8)(x-2)$

Vertex:_____

Vertex:_____

Vertex:_____

y-intercept:_____

y-intercept:_____

y-intercept:_____

Fill in the requested information. Then graph the function. Plot *at least* five points!

10. $f(x) = x^2 - 6x + 4$

$a =$ _____ $b =$ _____ $c =$ _____

Form:_____
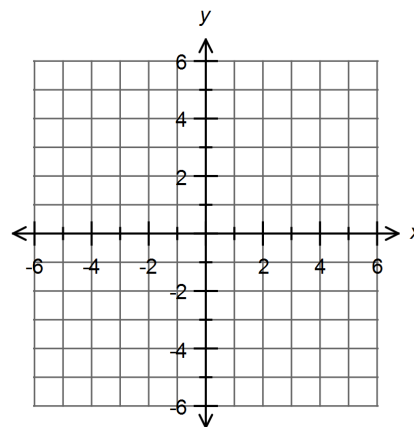
Direction of Opening:_____

Vertex:_____

Axis of Symmetry:_____

Is the vertex a maximum or minimum?_____

Maximum or minimum value:_____

y-intercept:_____

x	$f(x)$

Vertex

Show work here:

11. $y = -2(x+2)^2 + 5$

$a =$ _____ $h =$ _____ $k =$ _____

Form:_____

Direction of Opening:_____

Vertex:_____

Axis of Symmetry:_____

Is the vertex a maximum or minimum?_____

Maximum or minimum value:_____

y-intercept:_____

x	y
Vertex	

12. $y = \dfrac{1}{2}(x-2)(x-6)$

$a =$ _____ $p =$ _____ $q =$ _____

Form:_____

Direction of Opening:_____

Zeros:_____

Vertex:_____

y-intercept:_____

Show work here:

x	y
Vertex	

For each function, do the following: 1) state whether the function is in standard, vertex, or factored form, 2) find the zeros (*x*-values), 3) state the *x*-intercepts (as ordered pairs), and 4) find the *y*-intercept (as an ordered pair).

13. $f(x) = x^2 - 10x + 21$

Form:_____

Zero(s): _____

x-intercept(s): _____

Show work here:

14. $y = -6x(x+7)$

Form:_____

Zero(s): _____

x-intercept(s): _____

Show work here:

15. $y = 2x^2 - 4x - 34$

Form:_____

Zero(s): _____

x-intercept(s): _____

Show work here:

16. $f(x) = (x-2)^2 + 25$

Form:_____

Zero(s): _____

x-intercept(s): _____

Show work here:

Vocabulary

Write the letter of the definition that best describes each word, phrase, or expression in the appropriate blank. <u>One of the definitions will be used three times!</u>

_____ Axis of Symmetry (What is it?)

_____ Equation of the Axis of Symmetry

_____ Factored Form of a Quadratic Function

_____ Maximum Point

_____ Minimum Point

_____ $\dfrac{-b}{2a}$

_____ Quadratic Function

_____ Roots

_____ Standard Form of a Quadratic Function

_____ Vertex

_____ Vertex Form of a Quadratic Function

_____ x-Intercepts

_____ Zeros

A. $f(x) = ax^2 + bx + c,$ where $a \neq 0$.

B. The vertex of a parabola that opens upward is the _____ of the graph.

C. The vertical line that divides a parabola in half.

D. $f(x) = a(x-h)^2 + k,$ where $a \neq 0$.

E. The vertex of a parabola that opens downward is the _____ of the graph.

F. The set of x–values which make $f(x) = 0,$ indicating where the graph will cross the x-axis.

G. $f(x) = a(x-p)(x-q),$ where $a \neq 0$.

H. The point where the parabola changes direction – the "tip" of the parabola. (h,k) from the equation $f(x) = a(x-h)^2 + k,$ where $a \neq 0$.

I. $x = \dfrac{-b}{2a}$ for a quadratic function in standard form or $x = h$ for a quadratic function in vertex form.

J. The type of function whose graph is a parabola. It can be written in standard form, vertex form, or factored form.

K. This expression gives the x-coordinate of the vertex of a parabola when the equation is written in standard form.