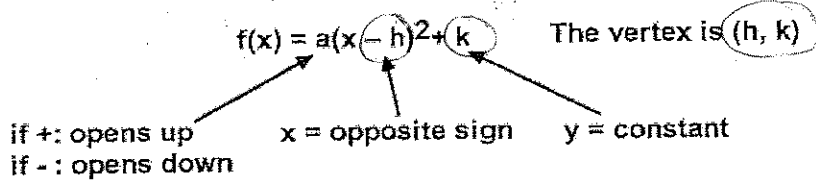


Vertex Form

Name: _____

How would you find the vertex of an equation?

If its in Vertex Form:



Example: $f(x) = -2(x - 5)^2 + 4$

vertex

open down
vertex: $(5, 4)$
AOS: $x = 5$

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

Direction: _____

Vertex: _____

Axis of Symmetry: _____

up
 $(4, 3)$
 $x = 4$

2. $f(x) = -4(x + 8)^2 + 2$

Direction: _____

Vertex: _____

Axis of Symmetry: _____

down
 $(-8, 2)$
 $x = -8$

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

Direction: _____

Vertex: _____

Axis of Symmetry: _____

up
 $(-2, -4)$
 $x = -2$

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

Direction: _____

Vertex: _____

Axis of Symmetry: _____

up
 $(4, 2)$
 $x = 4$

5. $f(x) = -2(x + 2)^2$

Direction: _____

Vertex: _____

Axis of Symmetry: _____

Down
 $(-2, 0)$
 $x = -2$

6. $f(x) = -(x + 1)^2 + 6$

Direction: _____

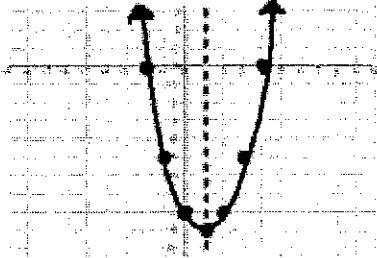
Vertex: _____

Axis of Symmetry: _____

down
 $(-1, 6)$
 $x = -1$

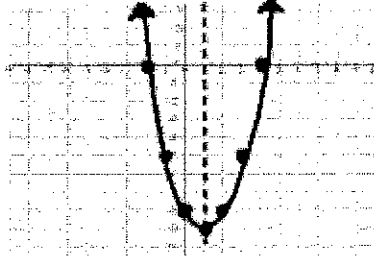
$y = x^2 - 2x - 8$
Standard Form

x	y
-2	0
-1	-5
0	-8
1	-9
2	-8
3	-5
4	0



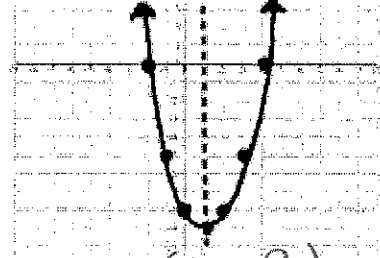
$y = (x - 1)^2 - 9$
Vertex Form

x	y
-2	0
-1	-5
0	-8
1	-9
2	-8
3	-5
4	0



$y = (x + 2)(x - 4)$
Intercept Form

x	y
-2	0
-1	-5
0	-8
1	-9
2	-8
3	-5
4	0



$(1, -9)$

 $x = 1$

 $(0, -8)$

 $(-2, 0) \text{ \& } (4, 0)$

1. What is the vertex of each graph?
2. What is the axis of symmetry of each graph?
3. What is the y-intercept of each graph?
4. Where does the graph cross the x-axis?
5. Do you see any of these #'s in the equations above? Do certain forms have certain benefits?

Benefits of Quadratic Functions in Different Forms:

Standard Form	Vertex Form	Intercept Form
$y = x^2 - 2x - 8$	$y = (x - 1)^2 - 9$	$y = (x + 2)(x - 4)$
y-intercept $(0, -8)$	vertex $(1, -9)$ AOS $x = 1$	x-intercepts $(-2, 0) \text{ \& } (4, 0)$ roots/solutions/zeros $-2, 4$