

Graphing

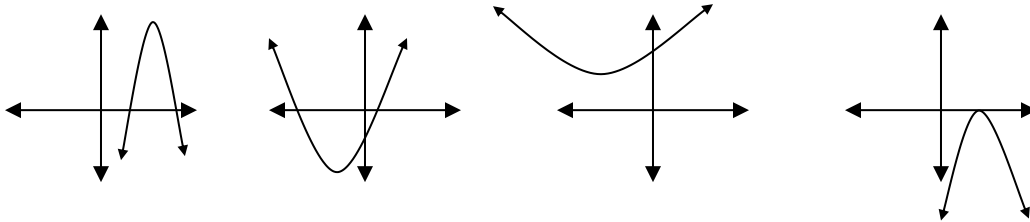
Quadratic

Functions

Quadratic Function General Form →

$$ax^2 + bx + c = 0$$

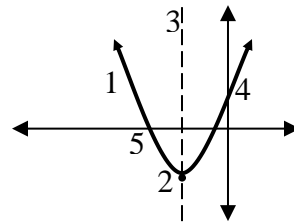
Examples of graphs of Quadratic Functions



VOCAB!!!

1. parabola
2. vertex
3. axis of symmetry

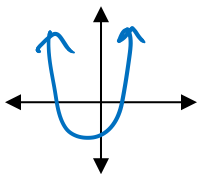
4. y-intercept
5. x-intercept



Watch as the following quadratic functions are graphed on the graphing calculator
Sketch each graph

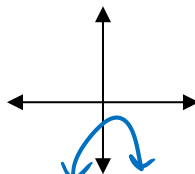
1) $y = x^2 + 2x - 5$

$a = 1$ $b = 2$ $c = -5$



2) $y = -x^2 + 2x - 5$

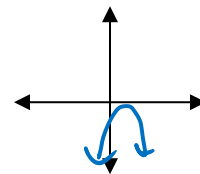
$a = -1$ $b = 2$ $c = -5$



GUESS!

3) $y = -4x^2 + 7x - 3$

$a = -4$ $b = 7$ $c = -3$



What determines the direction of the parabola????? the a-value
(pos - up, neg - down)

For the following, state whether the parabola will open up or down

1) $y = 7x^2 + 4x - 12$

$a = 7$ $b = 4$ $c = -12$

direction up

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

$a = -3$ $b = 1$ $c = 0$

direction down

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

$a = 2$ $b = -4$ $c = 0$

direction up

The **vertex** is the highest or lowest point on the parabola. It is sometimes called the maximum or the minimum.

****NOTE: When determining the vertex remember it is an
Be sure to find the x and y coordinates!

ordered pair (x,y)

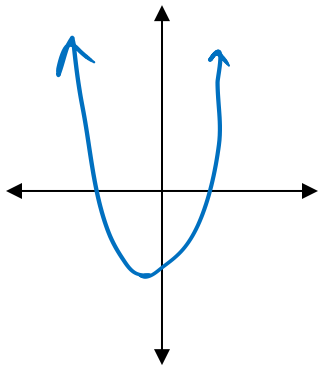
Use your graphing calculator to find the vertex for each quadratic function then sketch the graph. (include the axis of symmetry)

1) $y = x^2 + 2x - 5$

a = 1 b = 2 c = -5

direction up

Vertex (-1 , -6)



Axis of Symmetry

$x = -1$

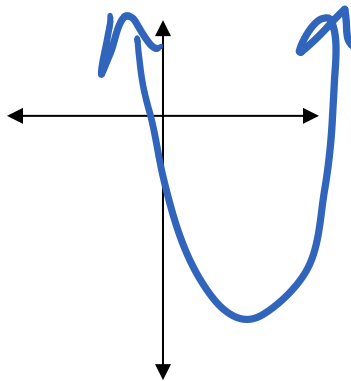
* x-value of vertex

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

a = 1 b = -4 c = -4

direction up

Vertex (2 , -8)



Axis of Symmetry

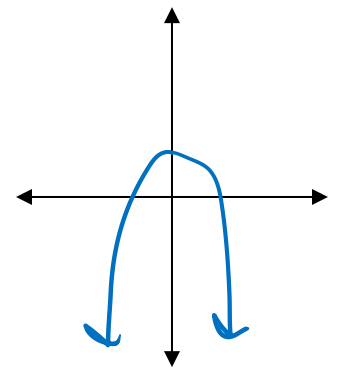
$x = 2$

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

a = -1 b = 0 c = 2

direction down

Vertex (0 , 2)



Axis of Symmetry

$x = 0$