ANALYZING QUADRATIC FUNCTIONS – Day 1

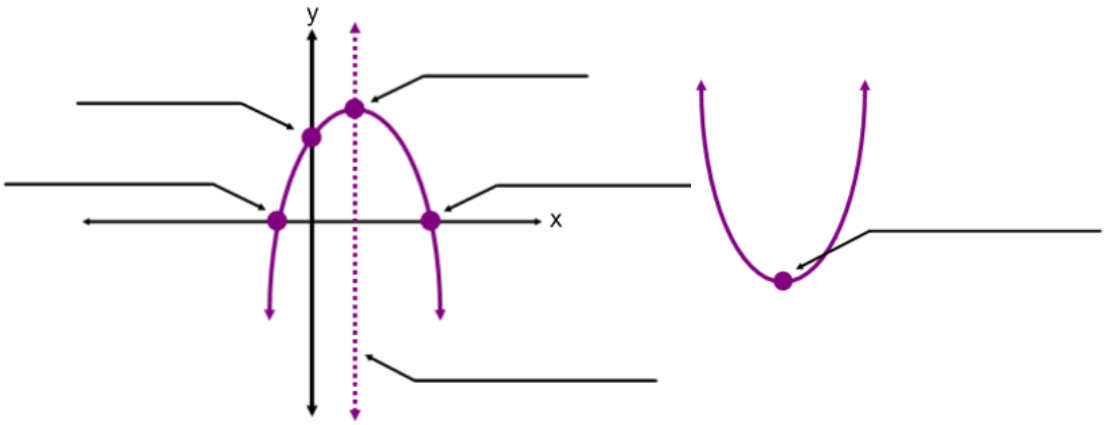
1. Solve by factoring: $x^2 + 2x - 8 = 0$

The **quadratic equation** in example 1 is a variation of its **quadratic function** $y = x^2 + 2x - 8$.

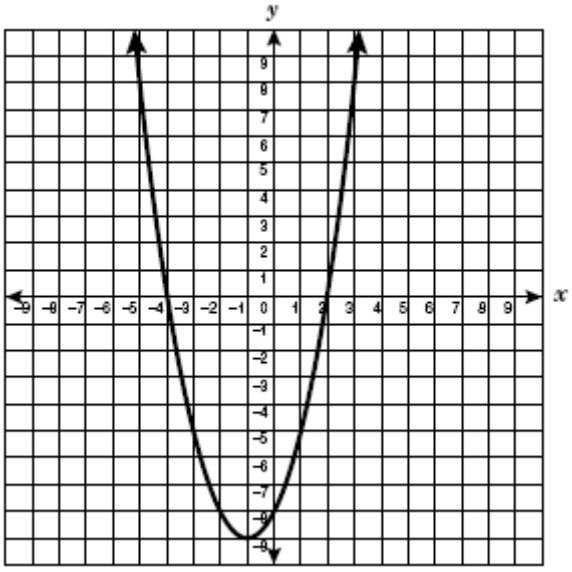
While linear functions form a straight line, **quadratic functions** form a "U" shaped graph known as a **parabola**. Using the word bank, label the parts of the parabolas below.

Word Bank:

Vertex (Maximum)
Vertex (Minimum)
Axis of Symmetry
x-intercept
y-intercept



2. The quadratic function $y = x^2 + 2x - 8$ is graphed below. Answer the following.



a) What is the vertex?

b) Is it a max or a min?

c) What is the line of symmetry?

d) What is the y-intercept?

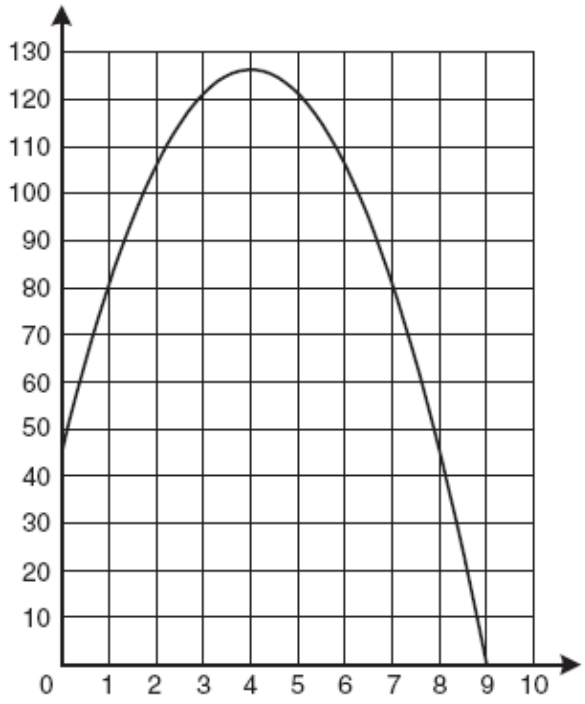
e) What are the x-intercepts?

f) What do you notice about the x-intercepts found in part e and the solutions found by factoring in example 1?

These words all mean the same thing and are used interchangeably:

_____, _____, _____, & _____

3. Using the graph below answer the following questions.



a) What is the maximum point?

b) What is the axis of symmetry?

c) What is the y-intercept?

d) What are the x-intercepts?

f) What is the best estimate of the largest value of x for which this function equals 80?

4. What are the x-intercepts of the quadratic function $y = 2x^2 + 6x - 36$?
(Hint: All x-intercepts have y values of 0.)