Precalculus – Section 2.1 Notes
Quadratic Functions

Complete problems 1-9 on page 95.

1.   2.

3.   4.

5.   6.

7.   8.

9a.   9b.

9c.   9d.

As an example of the use of quadratic functions, we can use them to model the path of objects that are being thrown or projected. For example, the path of a diver is given by the function $h(x) = \frac{-4}{9}x^2 + \frac{24}{9}x + 12$ where h is the height (in feet) and x is the horizontal distance (in feet) from the end of the diving board. What is the maximum height of the diver?

Graphically: Algebraically:

Quadratic Function: Let a, b, and c be real numbers with $a \neq 0$. The function f given by $f(x) = ax^2 + bx + c$ is called a quadratic function.

Standard Form of a Quadratic Function: $f(x) = a(x - h)^2 + k$ where (h, k) represents the vertex.

EX 1: Put the function f given by $f(x) = x^2 - 4x - 12$ into standard form, identify the vertex, and find the x-intercepts.

EX 2: Put the function g given by $g(x) = -2x^2 + 12x - 11$ into standard form, identify the vertex, and find the x-intercepts.

Finding the Vertex from General Form:

Homework: pp. 95-97 #'s 17, 19, 21, 25, 31, 40, 49, 53, 63