

Section 7-1

- Be able to solve a quadratic equation using the method of completing the square.

Section 7-2

- *Be able to derive the quadratic formula from the equation $ax^2 + bx + c = 0$ by completing the square.*
- Know how to find the roots of a quadratic equation using the quadratic formula. The coefficients may be integers, imaginary numbers, or irrational (e.g. square roots).
- Know how to setup and solve word problems involving quadratic equations.

Section 7-3: SKIP THIS SECTION**Section 7-4**

- Know how to solve an equation in quadratic **form** using a variable substitution " $y = \underline{\hspace{1cm}}$ ". For example, in the equation $x^4 - 3x^2 + 5 = 0$, let $y = x^2$ and the equation becomes $y^2 - 3y + 5 = 0$. Find the y roots, then use the variable substitution to find the x roots.
- If the variable substitution contains a radical, you **MUST** check for extraneous roots. They are easy to spot. Remember, $\sqrt{x} = -b$ has **NO SOLUTION** for $b > 0$ because the square root represents a positive number!
- Also remember that the number of roots is the same as the highest power of the polynomial.

Section 7-5

- Know how to graph a parabola in vertex form: $y - k = a(x - h)^2$.
 - Remember, this is just the parabola $y = ax^2$ shifted h units horizontally and k units vertically.
 - This allows you to simply graph $y = ax^2$ **relative to the vertex**.
- Know how to create an equation in vertex form when given information about the parabola such as its vertex and another piece of information (e.g. y -intercept, or an x -intercept).

Section 7-6

- Know how to convert a **general form** function $f(x) = ax^2 + bx + c$ into a **standard form** function $f(x) = a(x - h)^2 + k$ and back into vertex form $y - k = a(x - h)^2$.
- Know how to find the vertex, maximum or minimum, range, and zeros of a quadratic function in general form by converting it into standard form (complete the square).

REVIEW ASSIGNMENT 7A:

7-1 Page 310 #18, 22, 24
 7-2 Page 314 #8-28 EOE
 7-3 SKIP
 7-4 Page 324 #4, 6, 10

REVIEW ASSIGNMENT 7B:

7-5 Page 331 #8, 10, 12
 Page 332 #20, 24, 26
 7-6 Page 336 #8-28 EOE

This is due on the day of the test. Please label each section clearly and remember to check the blog for the answers.