ALGEBRA FOR CALCULUS Stretch I Topics List for Exam III

**Section 3.1 and 3.2 Complex Numbers and Quadratic Functions**

* All calculations with complex numbers, like the homework on pp.239-240. Be sure to review powers of  *i* like #79 – 88 on p. 240.
* Be able to use complex numbers while solving a quadratic equation or finding zeros of quadratic functions (# 43, 44, 47, 71, 72 on p. 254)
* Be able to solve a quadratic equation by completing the square (like #29 – 36 on p. 254)
* Be able to solve a quadratic equation by using the quadratic formula (like #37 – 56. You will definitely be given one in which you need to simplify the radical – like #45. All answers must be given in exact form – no decimal approximations!)
* Be able to solve quadratic type equations, like #79 – 94 on pp. 254-255

**Section 3.3 Graphs of Quadratic Functions**

* Be able to complete the square on a quadratic function and put it in vertex form (#11 – 16 on p. 266)
* Use the shortcut formula for finding the vertex of a given quadratic function (#31 – 40 on p. 268). Also identify domain, range, whether it has a max or min, and the intervals over which function is increasing or decreasing
* Find max or min value in a real world scenario, given the quadratic function (#41 – 44, 49, 51)
* Be able to write a quadratic function, given a real world scenario. You definitely will have one of these, most likely an area problem ( like # 46, 53 on pp. 268-69 and also those on the worksheet) or a profit function (like #50 – 52).

**Section 3.5 Absolute Value Equations and Inequalities**

* Solve equations with absolute value.
* Solve inequalities with absolute value.
* Memorize boxes on pp. 280,282
* See homework 1-61 odd pp 283-84.