

# [INTERMEDIATE ALGEBRA EXAM II REVIEW TOPICS]

(use this to make sure you are ready)

The following list represents material that may be on the upcoming exam. I have provided the sections that have been covered in class and the important concepts discovered within each. I suggest reviewing your notes, reviewing past assignments, looking at examples provided in your book in the chapters you struggle with, and **taking advantage of the tutor center in the next couple days.**

## (chapter 8) – Factoring and Solving Polynomials

### (8.1) – factoring $x^2 + bx + c$ (page 441)

- Know how to factor  $x^2 + bx + c$
- Know how to factor a difference of squares

### (8.2) – factoring out the GCF and factoring by grouping (page 449)

- Know how to factor out GCF
- Know how to factor by grouping
  - Example:  $12x^3 + 3x^2 + 8x + 2$

### (8.3) – Factoring $ax^2 + bx + c$ with $a \neq 1$ (page 456)

- Know the trial and error method and also grouping method

### (8.4) – Sums and differences of cubes (page 446)

- There are two formulas in this chapter:
  - Factoring a sum of two cubes
  - Factoring a difference of two cubes
- These formulas should be something you write on your page of notes for the exam.

### (8.5) – solving polynomial equations by factoring (page 468)

- Using **zero factor property** to find the “zeros” of a quadratic equation
- Finding the x-intercepts of quadratic functions (basically same thing as finding zeros)

## (chapter 9) – Quadratic Functions

### (9.1) – graphing quadratic functions in vertex form (page 495)

- Know the steps needed to take to graph  $f(x) = a(x - h)^2 + k$  where  $a \neq 0$ 
  - Know how to easily find the vertex given a function in vertex form
  - Find two points on same side of axis of symmetry and reflect them
  - Graph of parabola is always “U” shape (up or down) – never a “V” shape.

### (9.2) – graphing quadratic functions in standard form (page 506)

- Know the steps needed to take to graph  $f(x) = ax^2 + bx + c$  where  $a \neq 0$ 
  - Know how to locate the y-intercept
  - Know the vertex formula (page 492)
  - Know how to find symmetric points
  - Note: graphing quadratics in standard form requires two points (pair of symmetric points – one of the points is the y-intercept) and a vertex.
  - Know how to find the min/max of a quadratic equation (find the vertex)

**(9.3) – Simplifying radical (square root) expressions (page 518)**

- Know the product and quotient properties for square roots
- Know how to simplify a radical (factor tree stuff)
- Know how to rationalize a denominator

**(9.4) – Using square roots to solve quadratic equations (page 527)**

- Know that the square root of a number yields a positive and negative result
  - by factoring
- know what a complex number is and know the definition of  $i = \sqrt{-1}$

**(9.5) – completing the square (page 538)**

- Know how to use completing the square

**(9.6) – The Quad. Form. (page 545)**

- Know the quadratic formula (put it on your page of notes!)
- Know how to find the # and type of solutions to an equation by using the **discriminant**

**(Additional Thoughts)**

There is only 50 minutes to take the exam – so I won't be able to put ALL of the stuff on this review on the exam itself. As for review/practice problems, I am going to mostly leave that up to you. In the past I have made review assignments, but ultimately I am never able to make a "one-size-fits-all" review, mostly due to the fact that it's impossible to even do that – everyone will need to review different things. Therefore, I want you to go through this sheet and determine what the things you need to work on are. At the end of each section in the book there are problems you can do for practice (and yes we've done some of them before as homework, but it's always good to review problems we've done).

I have posted a long review online – it is not mandatory that you finish it, but if you do I will award you with 5 points of extra credit. Additionally, it does not contain every single type of problem we have done before, so while I think studying the review is a good way to hit key points of each chapter, it's not a super comprehensive review – make sure you go through your notes and homework from the book as well!