

Topic Checklist for Test 1

College Algebra

Format

- The exam will be at most 5 pages long.
- It is a paper and pencil exam – it will not be on the computer.
- You will need to show your work.
- You may use a scientific or graphing calculator.
- The exam should last you around 50 minutes, but it is not timed. That said, you must finish the exam after you begin it and cannot leave part way thru and then complete it later.

Basic Content

- You are responsible for sections EIII.C, 11.1, and 11.2.
- In addition to the material in the sections, you are responsible for all of the basic facts you have learned since kindergarten. These include the following facts:
 - Barack Obama is the President of the United States of America
 - $-1^2 = -1$.
 - “ $\frac{a}{0}$ is undefined”
 - You must be able to read and interpret quotes.

Where You Should Be

- You should plan to finish your work on Academic Systems two days prior to the exam (or early on the day before the exam at the latest). You should plan to have your homework done by a decent hour on the day before the exam.
- After completing your homework, you should plan on spending 2 to 5 hours studying for this exam (more time is certainly appropriate when necessary).
- A good way to practice is to work thru the practice tests at the end of each section *with your book closed*.
- Remember, the exam is closed book and closed note. It is also timed. I recommend that you study under the same or similar constraints.

Topics

1. EIII.C: Equations and Inequalities
 - a. Linear and absolute value equations and inequalities
 - i. Solving linear equations
 - ii. Interval notation
 - iii. Solving linear inequalities
 - iv. Solving absolute value equations
 - v. Solving absolute value inequalities
 - b. Quadratic equations
 - i. Solving quadratic equations

1. By factoring
 2. By the square root method
 3. By completing the square
 4. By the quadratic formula
 - ii. Complex numbers
 - iii. The discriminant
 - iv. Solving other polynomial equations
 - c. Linear equations
 - i. Cartesian coordinate system
 - ii. Distance formula
 - iii. Midpoint of a line segment
 - iv. Find the equation of a line
 1. Point slope form
 2. Standard form
 3. Slope-intercept form
 4. Horizontal and vertical lines
 5. Parallel and perpendicular lines
2. 11.1: Functions
 - a. Functions and graphs
 - i. Definition of a function
 - ii. Functions as an ordered pair of numbers
 - iii. Finding function values given a formula
 - iv. Function notation: $y = f(x)$
 - v. Graphing simple functions
 - vi. Domain and range of a function
 - vii. The vertical line test
 - b. Linear functions
 - i. Graphs of linear functions
 - ii. Graphs of absolute value functions
 - c. Quadratic functions
 - i. Graphs of quadratic functions
 - ii. Intercepts of quadratic functions
3. 11.2: The Algebra of Functions
 - a. The algebra of functions
 - i. The sum and difference of functions
 - ii. The product and quotient of functions
 - iii. The composition of functions
 - b. Inverse functions
 - i. Finding the inverse
 - ii. One-to-one: checking whether a function has an inverse
 - iii. Graphing inverse functions