PREPARATION GUIDE FOR
FUNDAMENTAL ALGEBRA PLACEMENT TEST

Students who want to demonstrate that they have the skills taught in Fundamental Algebra my take the placement test and place out of the course. The Fundamental Algebra Placement Test consists of 22 multiple-choice questions. A student who answers at least 16 of the questions correctly can place out of the course. The test much be completed within two hours and the use of a calculator is encouraged.

The questions on the test address topics generally taught in high school Algebra 2. The topics include:

- Applying the properties of real numbers (especially, commutative, associative, distributive, identity)
- Simplifying algebraic expressions (including expressions with exponents, radicals, and absolute values)
- Solving and graphing linear equations and inequalities
- Solving formulas for specific variables
- Applying the rules of exponents (including rewriting expressions with negative exponents using positive exponents and applying rational exponents)
- Simplifying polynomials (adding, subtracting, multiplying, dividing)
- Factoring polynomials
- Solving quadratic equations
- Simplifying, adding, subtracting, multiplying, and dividing rational expressions
- Solving rational equations
- Solving application problems involving rational equations
- Applying the definition of function
- Identifying the domain and range of specific functions
- Evaluating functions at particular values
- Identifying the slope and y-intercept in linear equations
- Writing the equation of a line given a point and the slope or two points
- Solving systems of linear equations in two and three variables
- Solving absolute value equations and inequalities
- Solving systems of linear inequalities
- Solving radical equations
- Solving quadratic and rational inequalities

To aid in preparation for this test, the following chart refers to the relevant sections in the textbook and a set of video lectures provided by the textbook publisher.

Textbook: Bittinger, Marvin L., and Beecher, Judith A. (2011). *Introductory and Intermediate Algebra, 4th ed*. Boston, MA: Pearson/Addison-Wesley. ISBN: 0-321-61337-6.

Please note: Students taking the course are required to purchase access to MathXL. The most economical way purchase this is with the textbook. The ISBN for the textbook bundled with the MathXL is ISBN: 978-0-321-71606-4.
This is the same text but includes access to the MathXL Web site. Purchasing the text and MathXL separately is more expensive.

Additional resources:

- Bittinger, Marvin. *Student's Solutions Manual for Introductory and Intermediate Algebra, 4/E*. Addison-Wesley. ISBN: 0-321-61362-7.

Students preparing to take this test should be familiar with the following topics. It is recommended that the student work several problems of medium difficulty (not just the first ones listed in the exercise) in each of the sections of the text book listed below.

Topic	Study the following sections in the textbook
Applying the properties of real numbers (especially, commutative, associative, distributive, identity)	Chapter 1, *Introduction to Real Numbers and Algebraic Expressions*, section 1.7.
Simplifying algebraic expressions (including expressions with exponents, radicals, and absolute values)	Chapter 1, *Introduction to Real Numbers and Algebraic Expressions*, section 1.8
Solving and graphing linear equations and inequalities	Chapter 2, *Solving Equations and Inequalities,* sections 2.1-2.8.
Solving formulas for specific variables	Chapter 2, *Solving Equations and Inequalities,* section 2.6.
Applying the rules of exponents (including rewriting expressions with negative exponents using positive exponents and applying rational exponents)	Chapter 4, *Polynomials: Operations,* sections 4.1 and 4.2.
Simplifying polynomials (adding, subtracting, multiplying, dividing; division by a monomial only)	Chapter 4, *Polynomials: Operations,* sections 4.3 through 4.8.
Factoring polynomials	Chapter 5, *Polynomials: Factoring,* sections 5.1 through 5.5 and 5.7.

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Solving quadratic equations	Chapter 5, *Polynomials: Factoring,* section 5.8. Chapter 11, *Quadratic Equations and Functions*, section 11.2.
Simplifying, adding, subtracting, multiplying, and dividing rational expressions	Chapter 6, *Rational Expressions and Equations*, sections 6.1 through 6.5.
Solving rational equations	Chapter 6, *Rational Expressions and Equations*, section 6.7.
Solving application problems involving rational equations	Chapter 6, *Rational Expressions and Equations*, section 6.8.
Applying the definition of function	Chapter 7, *Graphs, Functions, and Applications*, section 7.1.
Identifying the domain and range of specific functions	Chapter 7, *Graphs, Functions, and Applications*, section 7.2.
Evaluating functions at particular values	Chapter 7, *Graphs, Functions, and Applications*, section 7.1.
Identifying the slope and y-intercept in linear equations	Chapter 7, *Graphs, Functions, and Applications,* section 7.3.
Writing the equation of a line given a point and the slope or two points	Chapter 7, *Graphs, Functions, and Applications,* section 7.5.
Solving systems of linear equations in two and three variables	Chapter 8, *Systems of Equations*, sections 8.1 through 8.5.
Solving absolute value equations and inequalities	Chapter 9, *More on Inequalities*, section 9.3.
Solving systems of linear inequalities	Chapter 9, *More on Inequalities*, section 9.4.
Solving radical equations	Chapter 10, *Radical Expressions, Equations, and Functions*, section 10.6.
Solving quadratic and rational inequalities	Chapter 11, *Quadratic Equations and Functions*, section 11.8.