

MAT 055 Pre-Algebra

MAT 055 Course Objectives

Upon completion of this course, the student can:

1. State and use the properties of real numbers.
2. Perform basic operations on integers, fractions, and decimals.
3. Determine the absolute value of an integer, a fraction, or a decimal.
4. Determine prime factorization of whole numbers.
5. State and use the order of operations on integers, fractions, and decimals.
6. Round whole numbers and decimals to an indicated place value.
7. Evaluate whole number powers of integers, fractions, and decimals.
8. Evaluate square roots of perfect squares of integers, fractions, and decimals.
9. Evaluate algebraic expressions.
10. Simplify algebraic expressions.
11. Use both the addition and multiplication properties to solve a linear equation.
12. Solve problems involving ratio and proportion.
13. Solve problems involving percents.
14. Convert among fractions, decimals, and percents.
15. Determine the length of the unknown side of a right triangle using the Pythagorean Theorem.
16. Determine the perimeter, circumference, area, surface area, and volume of basic plane figures and solids.
17. Solve applied problems using these competencies with real world applications.

MAT 055 Course Outline

- I. Integers
 - A. Properties of Real Numbers
 - B. Basic Operations
 - C. Absolute Value
 - D. Prime Factorization
 - E. Divisibility Tests
 - F. Order of Operations
 - G. Rounding
 - H. Whole Number Powers of Integers
 - I. Square Roots of Perfect Squares
- II. Fractions
 - A. Common Denominators
 - B. Basic Operations
 - C. Absolute Value
 - D. Order of Operations
 - E. Ordering Fractions
 - F. Whole Number Powers of Fractions
 - G. Square Roots of Perfect Squares
- III. Decimals
 - A. Basic Operations
 - B. Absolute Value
 - C. Order of Operations

- D. Ordering Decimals
 - E. Rounding
 - F. Whole Number Powers of Decimals
 - G. Square Roots of Perfect Squares
- IV. Algebraic Expressions and Equations
- A. Evaluating Algebraic Expressions
 - B. Simplifying Algebraic Expressions
 - C. Solving Linear Equations Using the Addition and Multiplication Properties
 - D. Solving Linear Equations containing fractions (without clearing fractions).
- VI. Ratios and Proportions
- A. Simplifying Ratios
 - B. Solving Proportions
- VII. Percents
- A. Converting among fractions, decimals, and percents
 - B. Problems Involving Percents
- VIII. Geometry
- A. Perimeter and Circumference
 - B. Area
 - C. Surface Area
 - D. Volume
 - E. Pythagorean Theorem
- IX. Applications
- A. Real Number Applications
 - B. Ration and Proportion Applications
 - C. Percent Applications
 - D. Geometry Applications