

**J. Sargeant Reynolds Community College
Course Content Summary**

Course Prefix and Number: MTE 3

Credits: 1

Course Title: Algebra Basics

Course Description: Includes basic operations with algebraic expressions and solving simple algebraic equations using signed numbers with emphasis on applications. Credits not applicable toward graduation. Prerequisite: Placement recommendation or MTE 2. Lecture 4 hours per week for $\frac{1}{4}$ semester.

General Course Purpose: This course is designed to introduce the student to integers, variables, algebraic expressions, equations, and their applications.

Course Prerequisites and Co-requisites:

Prerequisite: Placement recommendation or MTE 2

Student Learning Outcomes:

Upon completing the course, the student will be able to:

- a. Determine the absolute value of a number;
- b. Express repeated factors using exponents;
- c. Evaluate powers of numbers;
- d. Add, subtract, multiply, and divide signed numbers;
- e. Use the proper order of operations to simplify expression containing multiple operations on signed numbers, including powers and square roots;
- f. Convert between integer powers of 10 and equivalent decimal numbers;
- g. Convert numbers between scientific notation and standard notation;
- h. Identify the properties of real numbers (Commutative, Associative, Distributive, Identity, and Inverse Properties);
- i. Simplify an algebraic expression by combining like terms;
- j. Simplify algebraic expressions using the order of operations;
- k. Evaluate a formula or algebraic expression for given values of the variables;
- l. Solve one-step equations using rational numbers;
- m. Solve one-step equations using percents;
- n. Solve problems using proportions; and
- o. Solve application problems including finding perimeter, area, and volume.

Major Topics to Be Included:

- a. Absolute value
- b. Square root introduction
- c. Signed numbers
- d. Scientific notation
- e. Algebraic expressions
- f. Linear equation solutions
- g. Proportion problems
- h. Perimeter, area, and volume

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