

EASTERN ARIZONA COLLEGE

Elementary Algebra

Course Design

2017-2018

Course Information

Division	Mathematics
Course Number	MAT 077
Title	Elementary Algebra
Credits	4
Developed by	Ray Orr/Revised by Debra Green
Lecture/Lab Ratio	4 Lecture/0 Lab
Transfer Status	Non-transferable
Activity Course	No
CIP Code	27.0101
Assessment Mode	Pre/Post Test (25 Questions/100 Points)
Semester Taught	Fall and Spring
GE Category	None
Separate Lab	No
Awareness Course	No
Intensive Writing Course	No

Prerequisites

Placement test score as established by District policy

Educational Value

This course is designed for first time algebra students or students who need a refresher algebra course in preparation for future algebra courses.

Description

An introduction to Algebra. Topics include algebraic expressions, linear equations and inequalities, graphing, exponents, polynomials, factoring, and systems of equations.

Supplies

Scientific calculator

Competencies and Performance Standards

1. Solve linear equations and inequalities.

Learning objectives

What you will learn as you master the competency:

- a. Use the addition property to solve equations.
- b. Use the multiplication property to solve equations.
- c. Solve equations that require two or more steps.
- d. Solve problems using formulas.
- e. Solve inequalities.
- f. Solve a formula for a variable.

Performance Standards

Competence will be demonstrated:

- o on assigned activities
- o on written exams
- o on a two-hour cumulative final exam

Criteria - Performance will be satisfactory when:

- o learner demonstrates the ability to solve equations and inequalities in one variable

2. Use a rectangular coordinate system to graph points, lines, and inequalities.

Learning objectives

What you will learn as you master the competency:

- a. Identify the parts of a rectangular coordinate system.
- b. Sketch the graph of a relation from a table of ordered pairs.
- c. Solve for x and y-intercepts given a linear equation in two variables.
- d. Sketch the graph of a linear equation using the intercepts.
- e. Calculate slope given two points, a graph, or a linear equation.
- f. Use the slope-intercept form of a line to graph, find slope and intercepts.
- g. Use the point-slope form of a line to graph and find equation for a line.
- h. Use the vertical line test to determine if a graph represents a function.

Performance Standards

Competence will be demonstrated:

- o on assigned activities
- o on written exams
- o on a two-hour cumulative final exam

Criteria - Performance will be satisfactory when:

- o learner finds and plot points on a rectangular coordinate system
- o learner graphs linear equations by plotting points, intercepts, or slope-intercept
- o learner finds intercepts and slopes

3. Simplify polynomial expressions.

Learning objectives

What you will learn as you master the competency:

- a. Identify expressions that are polynomials.
- b. Add polynomials.
- c. Subtract polynomials.
- d. Multiply polynomials.
- e. Divide polynomials by monomial or binomial.
- f. Identify coefficients, variables, exponents, and like terms.
- g. Apply the laws of exponents to polynomial problems.

Performance Standards

Competence will be demonstrated:

- o on assigned activities
- o on written exams
- o on a two-hour cumulative final exam

Criteria - Performance will be satisfactory when:

- o learner demonstrates the ability to add, subtract, multiply and divide polynomials

4. Factor polynomial expressions.

Learning objectives

What you will learn as you master the competency:

- a. Factor out the Greatest Common Factor (GCF).
- b. Factor by grouping.
- c. Factor the difference of two squares.
- d. Factor trinomials.
- e. Use a general strategy for factoring polynomials.
- f. Use factoring to solve equations.

Performance Standards

Competence will be demonstrated:

- o on assigned activities
- o on written exams
- o on a two-hour cumulative final exam

Criteria - Performance will be satisfactory when:

- o learner demonstrates the ability to factor the GCF
- o learner demonstrates the ability to factor by grouping
- o learner demonstrates the ability to factor trinomials with a lead coefficient of 1
- o learner demonstrates the ability to factor trinomials with a lead coefficient other than 1
- o learner demonstrates the ability to solve equations by factoring

5. Apply techniques to solve linear systems of equations.

Learning objectives

What you will learn as you master the competency:

- a. Solve a two equation linear system graphically.
- b. Solve a linear system of two equations by substitution.
- c. Solve a linear system of two equations by elimination.
- d. Identify a system as consistent or inconsistent, and dependent or independent.
- e. Solve applied problems using a linear system of equations.

Performance Standards

Competence will be demonstrated:

- o on assigned activities
- o on written exams
- o on a two-hour cumulative final exam

Criteria - Performance will be satisfactory when:

- o learner demonstrates the ability to solve linear systems of equations using a variety of methods

Types of Instruction

Classroom Presentation

Grading Information

Grading Rationale

Each instructor has the flexibility to develop evaluative procedures within the following parameters.

1. Written exams must represent at least 60% of the final course grade.
2. Final exam must represent at least 20% of the final course grade.
3. The Post Test is to be embedded in the final exam and must represent at least 10% of the final course grade.
4. Other activities may represent at most 20% of the final course grade.

Grading Scale

- A 90%-100%
- B 80%-89%
- C 70%-79%
- D 60%-69%
- F Below 60%