

EASTERN ARIZONA COLLEGE

Basic Math

Course Design

2018-2019

Course Information

Division	Mathematics
Course Number	MAT 055
Title	Basic Math
Credits	4
Developed by	Cliff Thompson
Lecture/Lab Ratio	4 Lecture/0 Lab
Transfer Status	Non-transferable
Activity Course	No
CIP Code	27.0101
Assessment Mode	Final Exam (38 Questions/100 Points)
Semester Taught	Fall and Spring
GE Category	None
Separate Lab	No
Awareness Course	No
Intensive Writing Course	No
Diversity and Inclusion Course	No

Prerequisites

None

Educational Value

To general education: Computational skills necessary to function in society.

For vocational purposes: In every vocation a person needs to understand basic math.

Description

A basic course in mathematics. Topics include operations with whole numbers, integers, fractions, and decimal numbers, ratio, proportion, and percent. Additional topics include U.S. customary and metric measurement systems, and geometry.

Supplies

Calculator

Competencies and Performance Standards

1. Whole Numbers – Use the operations of addition, subtraction, multiplication, division, and exponents with whole numbers.

Learning objectives

What you will learn as you master the competency:

- a. Add whole numbers.
- b. Subtract whole numbers.
- c. Multiply whole numbers.
- d. Divide whole numbers.
- e. Evaluate whole numbers raised to an exponent.
- f. Apply the order of operations on numerical expressions involving whole numbers.
- g. Solve application problems involving whole numbers.

Performance Standards

You will demonstrate your competence:

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

Your performance will be successful when:

- learner can demonstrate the ability to perform the basic operations (adding, subtracting, multiplication, division, and exponents) with whole numbers
- learner can demonstrate the ability to use the order of operations on numerical expressions involving whole numbers
- learner can demonstrate the ability to solve application problems involving whole numbers

2. Fractions – Use the operations of addition, subtraction, multiplication, division, and exponents with fractions.

Learning objectives

What you will learn as you master the competency:

- a. Add fractions.
- b. Subtract fractions.
- c. Multiply fractions.
- d. Divide fractions.
- e. Find a least common multiple and a greatest common factor.
- f. Simplify complex fractions.
- g. Apply the order of operations on numerical expressions involving fractions.
- h. Convert between mixed numbers and improper fractions.
- i. Solve application problems involving fractions.

Performance Standards

You will demonstrate your competence:

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

Your performance will be successful when:

- learner can demonstrate the ability to perform the basic operations (adding, subtracting, multiplication, and division) with fractions
- learner can demonstrate the ability to use the order of operations on numerical expressions involving fractions
- learner can demonstrate the ability to convert between mixed numbers and improper fraction
- learner can demonstrate the ability to solve application problems involving fractions

3. Decimal Numbers - Use the operations of addition, subtraction, multiplication, division, and exponents with decimal numbers.

Learning objectives

What you will learn as you master the competency:

- a. Add decimal numbers.
- b. Subtract decimal numbers.
- c. Multiply decimal numbers.
- d. Divide decimal numbers.
- e. Apply the order of operations on numerical expressions involving decimals.
- f. Convert decimal numbers to fractions and fractions to decimal numbers.
- g. Solve application problems involving decimal numbers.

Performance Standards

You will demonstrate your competence:

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

Your performance will be successful when:

- learner can demonstrate the ability to perform the basic operations(adding, subtracting, multiplication and division) with decimal numbers
- learner can demonstrate the ability to use the order of operations on numerical expressions involving decimal numbers
- learner can demonstrate the ability to convert between decimal numbers and fractions
- learner can demonstrate the ability to solve application problems involving decimals

4. Integers - Use the operations of addition, subtraction, multiplication, division, and exponents with integers.

Learning objectives

What you will learn as you master the competency:

- a. Add integers.
- b. Subtract integers.
- c. Multiply integers.
- d. Divide integers.
- e. Apply the order of operations on numerical expressions involving integers.
- f. Solve application problems involving integers.

Performance Standards

You will demonstrate your competence:

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

Your performance will be successful when:

- learner can demonstrate the ability to perform the basic operations (adding, subtracting, multiplication, division, and exponents) with signed numbers
- learner can demonstrate the ability to use the order of operations on numerical expressions involving signed numbers
- learner can demonstrate the ability to solve applications problems involving signed numbers

5. Percent – Use percent to solve problems.**Learning objectives**

What you will learn as you master the competency:

- a. Change between percents, decimals and fractions.
- b. Solve equations involving percents.
- c. Solve application problems involving percents.

Performance Standards

You will demonstrate your competence:

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

Your performance will be successful when:

- learner can demonstrate the ability to convert between decimals, fractions, and percentages
- learner can demonstrate the ability to solve application problems involving percentages

6. Ratios and Proportions – Use ratios and proportions to solve problems.**Learning objectives**

What you will learn as you master the competency:

- a. Use a ratio to compare two quantities with the same unit.
- b. Use a rate to compare two quantities with different units.
- c. Solve proportion equations.
- d. Solve application problems involving ratios and proportions.

Performance Standards

You will demonstrate your competence:

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

Your performance will be successful when:

- learner demonstrates the ability to use ratios to compare two quantities with the same or different units

- o learner demonstrates the ability to solve application problems involving proportions

7. Measurement – Use dimensional analysis to convert within and between measurement systems.

Learning objectives

What you will learn as you master the competency:

- Convert units in the U.S. customary system of measurement.
- Convert units in the metric system of measurement.
- Convert units between U.S. customary and metric systems of measurement.

Performance Standards

You will demonstrate your competence:

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

Your performance will be successful when:

- o learner demonstrates the ability to convert units

8. Geometry - Use basic mathematic operations to solve geometric problems.

Learning objectives

What you will learn as you master the competency:

- Find perimeter and area of geometric figures.
- Use the Pythagorean Theorem.
- Solve similar and congruent triangle problems.
- Solve application problems.

Performance Standards

You will demonstrate your competence:

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

Your performance will be successful when:

- o learner demonstrates the ability to find perimeter, area, and volume
- o learner demonstrates the ability to use the Pythagorean Theorem
- o learner demonstrates the ability to solve similar and congruent triangle problems

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 50% of the final course grade.
2. Final exam must represent at least 20% of the final course grade.
3. 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%