

Coffeyville Community College

PREP-003
COURSE SYLLABUS
FOR
ELEMENTS OF MATH

Marla Larimore
Instructor

COURSE NUMBER: PREP-003

COURSE TITLE: **ELEMENTS OF MATH**

CREDIT HOURS: 3 Credit Hours

INSTRUCTOR: Marla Larimore

OFFICE LOCATION: Upstairs in the Library

OFFICE HOURS: As posted on office door

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PREREQUISITE(S): None

REQUIRED TEXT: *Basic College Mathematics, Seventh Edition; Lial, Salzman and Hestwood*

COURSE DESCRIPTION: This is an introductory course designed to prepare students for the algebra sequence. Emphasis is placed on familiarizing the students with basic areas involving signed numbers, percentages, fractions, decimals, and beginning algebra.

**EXPECTED LEARNER
OUTCOMES:**

1. Add, subtract, multiply, and divide whole numbers.
2. Use exponential notation.
3. Apply the order of operations.
4. Simplify fractions, determine whether two fractions are equivalent, and order fractions.
5. Add, subtract, multiply, and divide fractions.
6. Use decimal notation to represent fractions.
7. Solve expressions & equations that contain decimal numbers
8. Set up and solve proportions using ratio.
9. Use percents to solve problems.
10. Add, subtract, multiply, and divide signed numbers.
11. Combine operations with signed numbers.
12. Identify and classify geometric terms and figures.
13. Find perimeter and area of polygons.

**LEARNING TASKS
& ACTIVITIES:**

Chapter 1 Whole Numbers

| | |
|-----------|--|
| | Exercises 1.1 – 1.10 and Review Exercises |
| Chapter 2 | Multiplying and Dividing Fractions Exercises 2.1 – 2.8 and Review Exercises |
| Chapter 3 | Adding and Subtracting Fractions Exercises 3.1 – 3.5 and Review Exercises |
| Chapter 4 | Decimals Exercises 4.1 – 4.6 and Review Exercises |
| Chapter 5 | Ratio and Proportion Exercises 5.1 – 5.5 and Review Exercises |
| Chapter 6 | Percent Exercises 6.1 – 6.8 and Review Exercises |
| Chapter 7 | |
| Chapter 8 | Geometry Exercises 8.1 – 8.9 and Review Exercises |
| Chapter 9 | Basic Algebra Exercises 9.1 – 9.8 and Review Exercises |

**ASSESSMENT OF
OUTCOMES:**

90 - 100% = A

80 - 89% = B

70 – 79% = C

60 – 69% = D

0 – 59% = F

Incomplete grades will not be given unless a student has had to miss at least six weeks of school for medical reasons. The student must request a grade of I (Incomplete) prior to the end of the semester.

The Student's final grade will be based upon:

| | |
|--------------------------|---------------------|
| Daily work-participation | 20 pts each chapter |
| Unit tests | 100 pts each |
| Final test | 200 pts |

**ATTENDANCE
POLICY:**

Students are expected to attend all classes. Regular class attendance is necessary for maximum success in college. It is the responsibility of students to make definite arrangements for all work before going on field trips. School sponsored activities will be counted as excused absences providing students complete all necessary assignments designated by the instructors and the activity sponsors notify the instructor at least three days prior to the day the students will be absent.

Excused absences are to include college sponsored events as approved by the Vice President of Instruction, if the instructor has advanced notice.

Make-up work will be due the next class period along with daily assignment that is made.

A student may be withdrawn from class for excessive absences.

No cell phones or electronic music devices are allowed during class time. Calculators are permitted for some assignments.

ELEMENTS OF MATH

ADD, SUBTRACT, MULTIPLY AND DIVIDE WHOLE NUMBERS

1. Compare whole numbers on a number line.
2. Know symbols for greater than, less than, and equal to.
3. Identify place value.
4. Apply the rules for adding and subtracting whole numbers.
5. Apply the rules for multiplying and dividing whole numbers.
6. Multiply by a power of ten.
7. Write a whole number as the product of factors.
8. Find the prime factorization of whole numbers.
9. Determine whether a whole number is divisible by 2, 3, 5, or 10.
10. Round numbers to the nearest ten, hundred, thousand, ten-thousand, hundred thousand, etc.

USE EXPONENTIAL NOTATION

1. Write a repeated product using exponential notation.
2. Identify the base and exponent in an exponential expression.
3. Find the value of an expression written in exponential notation.
4. Find the square root of a square number.
5. Estimate the square root of a whole number.
6. Find the cube root of a cubed number.

APPLY THE ORDER OF OPERATIONS

1. Use grouping symbols in an expression.
2. Use the rules for order of operations.
3. Apply the Commutative Property.
4. Apply the Associative Property.
5. Apply the Distributive Property.
6. Simplify expressions using variables.

SIMPLIFY FRACTIONS, DETERMINE WHETHER TWO FRACTIONS ARE EQUIVALENT, AND ORDER FRACTIONS

1. Find a fraction that is equivalent to a fraction with a given denominator.
2. Determine whether two fractions are equivalent using cross multiplication.
3. Find the Greatest Common Factor (GCF).
4. Divide a numerator and denominator by a common factor to simplify a fraction.
5. Find the Greatest Common Factor (GCF) to simplify a fraction.
6. Write a mixed numeral as an improper fraction.
7. Write an improper fraction as a mixed numeral.

ADD, SUBTRACT, MULTIPLY AND DIVIDE FRACTIONS

1. Write a reciprocal of a fraction.
2. Use rules to multiply and divide fractions.
3. Find a common denominator of two or more fractions.
4. Find the Least Common Denominator (LCD) of two or more fractions.
5. Use a common denominator to order fractions.
6. Add and subtract fractions having same denominators.
7. Add and subtract fractions that have different denominators.
8. Use properties of fractions and the order of operations to add, subtract, multiply, and divide fractions.
9. Add and subtract fractional terms that contain a letter such as “x” or “y”.
10. Solve equations containing fractions.

USE DECIMAL NOTATION TO REPRESENT FRACTIONS

1. Find the place value of digits in a decimal number.
2. Read and write decimal numbers.
3. Order decimal numbers from least to greatest and from greatest to least.
4. Round decimal numbers.
5. Use a number line to relate fractions and decimals.
6. Convert decimals to fractions and vice versa.

SOLVE EXPRESSIONS AND EQUATIONS THAT CONTAIN DECIMAL NUMBERS

1. Use rules to add and subtract decimal numbers.
2. Apply rules to add and subtract decimal terms that contain a letter such as “x” or “y”.
3. Solve for an unknown by getting the unknown by itself on one side of the equation and simplify by adding or subtracting decimal numbers.
4. Use rules to multiply and divide decimal numbers.
5. Use properties of real numbers and the order of operations to add, subtract, multiply, and divide decimal numbers.

SET UP AND SOLVE PROPORTIONS USING RATIO

1. Use a ratio to compare two quantities.
2. Know the definition of equivalent ratios
3. Interpret how to use a ratio to represent a rate.
4. Solve a proportion by cross multiplication and getting the missing value by itself on one side of the equation.
5. Set up and solve a proportion with similar triangles.

USE PERCENTS TO SOLVE PROBLEMS

1. Know the definition of percent.
2. Convert percents to decimals to fractions and vice versa.
3. Find percent of decrease and increase.
4. Draw number line to understand principles of percent.

ADD, SUBTRACT, MULTIPLY AND DIVIDE SIGNED NUMBERS

1. Order signed numbers on a number line.
2. Find absolute value of a number.
3. Apply rules for adding two numbers with same and with different signs.
4. Find opposite of a number.
5. Write a subtraction as an equivalent addition.
6. Apply rules for subtracting signed numbers.
7. Know rules for multiplying two numbers with different and same signs.
8. Know rules for dividing two numbers with different and same signs.

COMBINE OPERATIONS WITH SIGNED NUMBERS

1. Evaluate an exponential expression with a negative base.
2. Use the order of operations with signed numbers.
3. Apply the commutative property of multiplication and the commutative property of addition with signed numbers.
4. Apply the associative property of multiplication and the associative property of addition to signed numbers. Use the distributive property with signed numbers.

IDENTIFY AND CLASSIFY GEOMETRIC TERMS AND FIGURES

1. Identify points, lines, line segments, and rays.
2. Define and measure angles.
3. Classify angles as acute, right, obtuse, or straight.

FIND PERIMETER AND AREA OF POLYGONS

1. Learn formulas for finding perimeter of a polygon.
2. Learn formulas for areas of a rectangle, parallelogram, triangle, and trapezoid.

This syllabus is subject to revision with prior notification to the student by the instructor.