

Course Objectives/Course Outline
Spokane Community College

Course Title: Mathematics for Elementary Education - A

Prefix and Course Number: MATH 208

Course Learning Outcomes:

By the end of this course, a student should be able to:

- Apply mathematics to the real world, using many different problem-solving strategies
- Pass each of five mastery tests with 100%, which are for fractions, integers, decimals, algebra and functions
- Work with sets and operations on sets
- Understand the Hindu-Arabic and other numeration systems
- Demonstrate proficiency in the vocabulary of the operations and properties of the number system
- Use and explain the algorithms for whole number computation
- Communicate the meaning of the beginning number theory vocabulary
- Use and explain the algorithms for fraction arithmetic and decimal arithmetic
- Use and explain ratios, proportions, and percents
- Communicate mathematical idea in both every day and mathematical language, using appropriate vocabulary and notation
- Judge the reasonableness of a solution or answer, and justify all processes used

Course Outline:

- I. Introduction to problem solving
 - a. Problem solving process
 - b. Strategies
- II. Sets, whole numbers, numeration
 - a. Set theory
 - b. Whole numbers and numeration
 - c. The Hindu-Arabic system
 - d. Relations and functions
- III. Reasoning (introduction to logic)
 - a. Logical connectives
 - b. Statements
 - c. Arguments
- IV. Whole numbers (operations and properties)
 - a. Addition and subtraction
 - b. Multiplication and division
 - c. Ordering and exponents
- V. Whole numbers computation
 - a. Mental mathematics, estimation, and calculators
 - b. Written algorithms for whole number operations
 - c. Algorithms for other bases
- VI. Number theory
 - a. Primes, composites, and tests for divisibility
 - b. Counting factors, greatest common factor, least common multiples

VII. Fractions

- a. The set of fractions
- b. Fractions: addition and subtraction
- c. Fractions: multiplication and division

VIII. Decimals, ratio, proportion, and percent

- a. Decimal
- b. Operations with decimals
- c. Ratio and proportion
- d. Percent

VIII. Clock arithmetic (optional)