



EFFECTIVE: JANUARY 2003
ARRICULUM T30: JANUARY 2003

	If Revision, Section(s)	_____
	Revised:	G, M, P, Q
	Date of Previous Revision:	June 1999
	Date of Current Revision:	June 28, 2002
C: Math 191	D: Mathematics for Teachers	E: 4

Subject & Course No.	Descriptive Title	Semester Credits
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F: Calendar Description:

This is a one semester course which explores the basic mathematical concepts which are taught in the elementary school curriculum. Topics will include sets, whole numbers and integers, arithmetic operations, rational and real numbers and the study of informal geometry inclu

M: Course Objectives / Learning Outcomes

At the end of the course, the successful student should be able to:

- employ pattern recognition, Polya's method and other critical thinking strategies to solve word problems
- understand and apply the concepts of set union, intersection and the Cartesian product
- use Venn diagrams to solve problems
- demonstrate addition, subtraction, multiplication and division of integers using a variety of appropriate models (e.g. sets, the real number line, tree diagrams, arrays)
- explain and apply the properties of the real numbers (e.g. commutative law, associative law, etc.)
- explain and apply the rules required to evaluate expressions involving integer exponents
- explain and use the Fundamental Theorem of Arithmetic and the Sieve of Eratosthenes
- demonstrate equivalence, addition, subtraction, multiplication, and division of fractions and decimals using a variety of appropriate models
- find and explain how to find greatest common factors and least common multiples
- convert and explain how to convert numbers from decimal to fractional or percentage form and vice versa
- solve problems involving applications of percent
- define and solve problems using commonly used terms of informal geometry: collinear, parallel, perpendicular, skew, triangle, circle, polygon, parallelogram, trapezoid, rectangle, rhombus, square
- define and solve problems using terms used in the description of angles: supplementary, complementary, adjacent, vertical, alternate, acute, obtuse
- explain and apply the basic properties of measurement to determine length, area and volume (i.e. the covering property, the congruence property, the additive property, the comparison property)
- convert between different units of measurement
- explain how geometric constructs separate the plane or space
- prove simple statements of geometry using deductive reasoning
- solve problems that require applying the concepts of symmetry, reflection and translation
- determine and explain how to determine if given triangles are similar, congruent or neither
- define terms and solve problems related to the geometry of triangles: equilateral, isosceles, scalene, acute, obtuse

NOTE TO INSTRUCTORS:

While teaching Math 191 the instructor's objectives should be:

- to spark and nurture a positive attitude towards mathematics
- to help students to reach a level of mathematical competence which will allow them to function effectively as mathematics teachers in an elementary school setting
- to expose students to the beauty of mathematics, along with its fun and creative sides

N: Course Content:

1. Critical Thinking and Inductive Reasoning
2. Strategies for Problem Solving
3. Sets