Integrated Math I - Grades 8, 9

This Integrated Math I class is taught at the Middle School in Grade 8 as well as the High School. The goals / objectives are the same at both levels. For each of the sections that follow, students may be required to analyze, recall, explain, interpret, apply, or evaluate the particular concepts being taught.

NUMBERS AND OPERATIONS

- sets of numbers on the number line
- add, subtract, multiply, and divide rational numbers
- order of operations

SOLVING EQUATIONS

- read, evaluate, and simplify algebraic expressions
- solve equations of the form $ax + b = c$ containing parenthesis and equations containing the same variable on both sides of the equation
- translate and solve word problems with equations
- solve a formula for an indicated variable

SOLVING INEQUALITIES

- solve and graph inequalities using the properties of inequalities
- solve word problems using inequalities

BASIC CONCEPTS OF GEOMETRY

- determine theorems and define properties related to points, lines, planes, rays, segments, and angles
- apply algebraic skills to find measurement of angles of non-parallel lines, parallel lines, and triangles
- identify polygons and find their angle measurements and perimeter

CONGRUENT TRIANGLES AND SIMILAR POLYGONS

- properties of congruent polygons and their corresponding parts
- parallelograms and the properties of parallelograms
- find lateral area, total surface area, and volume of space figures
- investigate right triangles and sine, cosine, and tangent ratios

REPRESENTING AND USING DATA

- communicate with graphs, diagrams, histograms, stem and leaf plots, and box and whisker plots

- calculate and apply mean, median, mode, and range for a given set of data

POLYNOMIALS AND FACTORING

- arithmetic operations of polynomials
- simplify polynomials
- factor polynomials
- solve quadratic equations

LINES AND THEIR EQUATIONS

- solve and graph a linear equation in two variables
- find the intercept and slope of a line
- write a linear equation into the form of $Y = m X + b$

RATIONAL AND IRRATIONAL NUMBERS

- simplify square root radicals by use of the three requirements for simplest form of a radical
- learn and use the quadratic formula
- (optional) add, subtract, multiply and divide radicals
- learn and use the Pythagorean Theorem

SYSTEMS OF LINEAR EQUATIONS AND LINEAR INEQUALITIES

- solve linear systems of equations by graphing, the substitution method, and the addition/subtraction method

PROBABILITY

- find the probability of an event given an experiment both experimentally and theoretically

COORDINATES AND FUNCTIONS

- introduce coordinate geometry
- translate and rotate figures on the coordinate plane
- interpret scatter plots and make predictions from real-world data
- enlarge or reduce a figure without changing its shape on the coordinate plane

[Revised June 2006]