1/15/08

PRE-ALGEBRA
GRADES 7-9

Units: 10 high school credits

General Description:

Pre-Algebra is a two-semester course designed to prepare students for achievement in Algebra I and higher-level math courses. Basic math skills are reviewed and reinforced, algebraic concepts (and some geometric concepts) are introduced and problem solving and critical thinking skills are emphasized. With the introduction of variables, expression, equations and mathematical properties, students develop the skills necessary to progress into first year algebra.

Course goals will be to prepare the student to enter into the college prep algebra sequence. Developing organizational skills in areas such as note taking, test taking, and neatness is essential. Students will understand the importance of multi-step problem solving, analyzing word problems and will develop a new language relating to mathematics.

Pre-Algebra Course Syllabus:

- Integers and expressions: the operations with integers; order of operations; evaluating expressions.
- Solving equations involving integers; distributive property; addition, multiplication, subtraction and division properties of equality.
- Decimals and equations.
- Exponents; rules of exponents; factorization; prime numbers; greatest common factors and least common multiples.
- Rational numbers and expressions; equivalent fractions; add, subtract, multiply and divide fractions.
- Ratios, proportions and percent; solving proportions; percent change; tax; similarity.
- Equations involving multiple steps to the solution; inequalities.
- Graphing one dimensional and two dimensional equations; slopes of lines; equation of lines; graphing inequalities.
- Factoring monomials and polynomials.

1/15/08

1/15/08

COURSE OUTCOMES FOR PRE-ALGEBRA

AREAS OF CONCENTRATION

Writing and solving addition and subtraction equations
Substituting numbers for variables
Rounding numbers for variables
Estimating sums and differences
Writing and solving multiplication and division equations
Multiplying and dividing by powers of ten
Estimating products and quotients
Using the symmetric property when the variable is on the right side of the equation
Using more than one operation to solve an equation
Rounding and comparing decimals
Using equations to solve word problems
Applying rules for the order of operations
Recognizing and using properties of addition and multiplication
Simplifying equations by combining like terms
Using equations to solve two step problems
Using Divisibility rules
Prime factorization
Algebraic factorization
Finding the **G C M** and **L C M** of two expressions
Finding an equivalent fraction for a given fraction
Comparing fractions and writing them in lowest terms
Writing whole and mixed numbers as fractions and reverse
Writing quotients as mixed numbers
Adding, subtracting, multiplying and dividing fractions with fractions, mixed numbers, or whole numbers
Finding a number when a fraction of it is known
Relating fractions to units of measure
Finding a fraction of a whole number
Identifying and comparing integers
Adding, subtracting, multiplying and dividing integers
Writing numbers in scientific notation
Solving equations involving integers
Writing an comparing rational numbers
Adding, subtracting, multiplying and dividing rational numbers
Solving equations involving rational solutions
Simplifying algebraic expressions by combining like terms
Solving equations that the same variable in more than one term
Solving equations that have several terms on each side of the equation
Using formulas to solve problems
Giving ratios of two quantities/Solving proportions
Changing percent to fraction and reverse
Finding the percent of a number
Finding a number when a percent is known

Using proportions to solve problems
Computing percent of increase or decrease
Measuring, drawing and classifying angles
Classifying polygons
Converting metric units of measurement
Computing perimeter and area of polygons
Computing circumference and area of a circle
Solving problems by drawing a diagram
Classifying space figures
Computing surface area
Computing volume
Graphing inequalities on a number line
Solving inequalities
Analyzing data and finding median, mode and range
Finding a mean
Analyzing statistics and making predictions
Classifying triangles
Using the Pythagorean theorem

AREAS OF PRACTICE

Addition and subtraction equations
Multiplication and division equations
Equations with decimals
Number properties and equations
Addition and subtraction of fractions
Multiplication and division of fractions
Integers and equations
Rational numbers and equations
Ratio, proportion and percent
Geometry: perimeter and area
Surface area and volume
Graphing equations and inequalities
Probability and statistics
Similar and right triangles