ModuMath Basic Math

Basic Math 1.1 - Naming Whole Numbers
1) Read whole numbers.
2) Write whole numbers in words.
3) Change whole numbers stated in words into decimal numeral form.
4) Write numerals in expanded notation.
5) State the number represented by each digit in a decimal numeral.

Basic Math 1.2 - The Number Line
1) Construct a number line.
2) Graph whole numbers on a number line.
3) Find the coordinate of a point on a number line.
4) Decide which of two points represents the smaller (or larger) whole number.
5) Use the < and > symbols to compare whole numbers.

Basic Math 1.3 - Addition of Whole Numbers, Part I
1) State the 100 addition facts from memory.
2) Interpret addition of whole numbers on the number line.
3) Recognize and use the identity for addition.
4) Recognize and solve word problems involving addition of small whole numbers.

Basic Math 1.4 - Addition of Whole Numbers, Part II
1) Find the sum of two or more whole numbers.
2) Solve practical problems using addition.

Basic Math 1.5 - Subtracting Whole Numbers
1) State from memory the hundred subtraction facts.
2) Subtract whole numbers, providing the first is greater than or equal to the second.
3) Check a subtraction problem by addition.
4) Solve word problems involving subtraction.

Basic Math 1.6 - Multiplying Whole Numbers, Part I
1) Use multiplication as a shortcut for addition.
2) Interpret multiplication on the number line.
3) Show multiplication facts as arrays.
4) Use multiplication to find areas.
5) Use multiplication to figure out combinations.
6) Multiply by zero.
7) Recognize and use the identity for multiplication.

Basic Math 1.7 - Multiplying Whole Numbers, Part II
1) State the 100 multiplication facts from memory.
2) Solve word problems involving multiplication of small whole numbers.

Basic Math 1.8 - Multiplying Whole Numbers, Part III
1) Multiply any two whole numbers.
2) Solve word problems involving multiplication.

Basic Math 1.9 - Exponents
1) Read expressions involving exponents.
2) Multiply two or more expressions with the same base by adding exponents.
3) Recognize and work with expressions having exponents equal to zero.
4) Write whole numbers in exponential notation.

Basic Math 1.10 - Dividing Whole Numbers, Part I
1) State the ninety basic division facts from memory.
2) Solve simple word problems involving division.
3) Use multiplication to check division.

Basic Math 1.11 - Dividing Whole Numbers, Part II
1) Divide any whole number by any other.
2) Solve word problems involving division.
3) Use multiplication to check division.

Basic Math 1.12 - Word Problems
1) Express word problems as number sentences.
2) Solve word problems involving addition, subtraction, multiplication, and division of whole numbers.

Basic Math 1.13 - Solving Equations
1) Solve simple equations.
2) Solve word problems involving simple questions.

Basic Math 1.14 - Prime Numbers
1) Determine whether a given whole number greater than 1 is prime or composite.
2) Use the Sieve of Eratosthenes.
3) Determine the prime factorization of a given whole number.

Basic Math 2.1 - Introducing Fractions
1) Use fractions in comparing two quantities.
2) Use fractions in expressing division.
3) Use fractions in measurement.
4) Locate fractions on the number line.
5) Recognize and use fractions with a denominator of 1.
6) Divide whole numbers, expressing the quotient as a fraction or as a whole number plus a fraction.

Basic Math 2.2 - Renaming Fractions
1) Express fractions in higher or lower terms.
2) Reduce fractions to lowest terms.
3) Recognize and use fractions equal to 1.
4) Recognize and use fractions equal to 0.

Basic Math 2.3 - Adding Fractions with the Same Denominator
1) Add two or more fractions with the same denominator.
2) Change a mixed number to an improper fraction.

3) Change an improper fraction to a mixed number.
4) Add combinations of mixed numbers, fractions, and whole numbers, provided all the denominators are the same.

Basic Math 2.4 - Adding Fractions with Different Denominators
1) Find a common denominator of two or more fractions.
2) Find the least common denominator of two or more fractions.
3) Add two or more fractions with different denominators.

Basic Math 2.5 - Subtracting Fractions
1) Indicate the larger of two fractions.
2) Subtract fractions.
3) Subtract mixed numbers.
4) Subtract a fraction or mixed number from a whole number.
5) Subtract a whole number from a mixed number.

Basic Math 2.6 - Multiplying Fractions
1) Multiply a fraction or mixed number and a whole number.
2) Multiply any combination of fractions and mixed numbers.
3) Solve word problems involving multiplication of fractions.

Basic Math 2.7 - Dividing Fractions
1) Divide a fraction by a mixed number, a whole number, or another fraction.
2) Divide a mixed number by a fraction, a whole number, or another mixed number.
3) Divide a whole number by a fraction or a mixed number.
4) Solve word problems involving division of fractions.

Basic Math 2.8 - Ratio and Proportion
1) Determine whether two ratios are equal.
2) Solve word problems involving proportions.

Basic Math 3.1 - Understanding Decimal Fractions
1) Write decimals in expanded notation.
2) Read decimals.
3) Change decimals to fractions.
4) Change a fraction to a decimal, provided the denominator is a power of ten.
5) Recognize the meaning of zeros to the right of a decimal point.

Basic Math 3.2 - Adding and Subtracting Decimal Fractions
1) Determine which is the larger or smaller of two decimals.
2) Add two or more decimals.
3) Subtract decimals.
4) Solve word problems involving addition and subtraction of decimals.

Basic Math 3.3 - Rounding Numbers
1) Round a number to a given decimal place.

Basic Math 3.4 - Multiplying Decimals
1) Multiply decimals.
2) Solve word problems involving multiplication of decimals.

Basic Math 3.5 - Dividing Decimal Fractions
1) Divide a decimal by a whole number.
2) Divide a whole number by a decimal.
3) Divide a decimal by another decimal.
4) Divide accurately to a given number of decimal places.
5) Solve word problems involving division of decimals.

Basic Math 3.6 - Changing Fractions to Decimals
1) Change a fraction or mixed number to a decimal.
2) Change a decimal to a fraction or mixed number.

Basic Math 3.7 - Square Roots
1) Use a table to find square roots of whole numbers from 1 to 100.
2) Recognize and use the fact that if a and b are any numbers, then the square root of a times b is the same as the square root of a times the square root of b.

Basic Math 4.1 - Percent
1) Change fractions and decimals to percents.
2) Change percents to fractions and decimals.

Basic Math 4.2 - Percent in Word Problems
1) Solve word problems involving percents by using proportions.

Basic Math 4.3 - More Problems in Percent
1) Solve more complicated word problems involving percents.

Basic Math 5.1 - Signed Numbers
1) Graph positive and negative numbers on the number line.
2) Decide which is the larger (or smaller) of two given signed numbers.
3) Find the absolute value of any given number.

Basic Math 5.2 - Adding Signed Numbers
1) Add two or more signed numbers.
2) Solve word problems involving addition of signed numbers.

Basic Math 5.3 - Subtracting Signed Numbers
1) Subtract any two signed numbers.

Basic Math 5.4 - Multiplying Signed Numbers
1) Multiply two or more signed numbers.

Basic Math 5.5 - Dividing Signed Numbers
    1) Divide a given signed number by another signed number.

Basic Math 5.6 - Signed Fractions
    1) Recognize when signed fractions are equal.
    2) Add signed fractions.
    3) Subtract signed fractions.
    4) Multiply signed fractions.
    5) Divide signed fractions.
    6) Solve equations involving signed fractions.

Basic Math 5.7 - Negative Exponents
    1) Recognize the meaning of expressions such as 6^{-4}.
    2) Divide two expressions involving exponents when the base are the same.
    3) Write numbers in exponential notation using positive and negative exponents.

Basic Math 6.1 - Measurement and Unit Conversion
    1) State the unit equivalences for time.
    2) Write unit equivalences as conversion factors.
    3) Change a denominate number from one unit of time to another using one conversion factor.
    4) Change a denominate number from one unit of time to another using two conversion factors.
    5) Solve time problems using unit cancellation.

Basic Math 6.2 - The Metric System
    1) Identify the common metric units of measurement for length, mass/weight, and fluid volume.
    2) State numeric equivalents of metric prefixes in both decimal and fraction form.
    3) Convert between metric units by cancellation and by moving decimals.

Basic Math 6.3 - Length
    1) State the equivalences for U.S. Customary units of length.
    2) Convert between units of length in the U.S. Customary system.
    3) Convert between U.S. Customary lengths and metric length by using unit cancellation, and by moving decimals.
    4) Solve practical problems with units of length.

Basic Math 6.4 - Perimeter
    1) Find the perimeter of irregular polygons.
    2) Use formulas to find the perimeter of rectangles and equilateral polygons.
    3) Find the length or width of a rectangle when the perimeter and the measure of one side is given.
    4) Use a formula to find the circumference of a circle and the length of a semicircle.
    5) Find the diameter or radius of a circle when the circumference is given.

Basic Math 6.5 - Area and Volume
    1) Use area formulas to find the number of square units in rectangles, parallelograms, triangles and circles.
    2) Use volume formulas to find the number of cubic units in rectangular solids and cylinders.

3) Solve practical problems involving area and volume.

Basic Math 6.6 - Fluid Volume
    1) State the relationship between the U.S. units of fluid measure.
    2) Convert between units of measure in the U.S. system.
    3) Convert between U.S. and metric for fluid volume.
    4) Use unit conversion factors for fluid volume to solve problems.
    5) Convert between fluid volume and cubic measurement of volume.

Basic Math 6.7 - Weight and Temperature
    1) State the relationship between the U.S. units of weight.
    2) Convert between units of weight in the U.S. system.
    3) State the relationship between metric units of mass.
    4) Convert between U.S. and metric units for weight/mass.
    5) Convert degrees of temperature from Fahrenheit to Celsius, and from Celsius to Fahrenheit.

Basic Math 6.8 - Compound Denominate Numbers
    1) Add and subtract compound denominate numbers with units of length, time and weight.
    2) Multiply and divide compound denominate numbers.
    3) Convert compound units in rate problems.

Basic Math 6.9 - Angles, Arcs and Sectors
    1) Identify an angle as acute, obtuse, right or straight.
    2) Compute the complement and supplement of an angle.
    3) Identify pairs of angles as adjacent, vertical, alternate interior or corresponding.
    4) Find the length of an arc.
    5) Find the area of a sector.

Basic Math 6.10 - Triangles
    1) Identify scalene, equilateral, isosceles and right triangles.
    2) Apply the properties of triangles to find the measure of unknown angles.
    3) Use the Pythagorean Theorem to find the length of one side of a right triangle when two sides are given.
    4) Solve practical problems using the properties of triangles.

Basic Math 6.11 - Interpreting Graphs
    1) Read and interpret data from circle graphs, bar graphs and broken line graphs.
    2) Find the amount that is represented by a sector of a circle graph when the percent is given.
    3) Accurately interpret the scales on the vertical and horizontal axes of bar graphs and line graphs.
    4) Recognize distortions in bar graphs and broken line graphs.
    5) Use graphs to draw conclusions about data.

Basic Math 6.12 - Mean, Median and Mode
    1) Find the mean, median and mode from a set of data.
    2) Find a missing number in a set of data when the mean is known
    3) Recognize how an outlier may affect the value of the mean.

4) Analyze which measure of central tendency is appropriate to describe a given set of data.

5) Explain how different measures of central tendency can be used to draw different conclusions about a given set of data.