MATH I - Mathematical Problem Solving I

MATH I focuses on algebraic, graphical, and numerical problem solving skills with emphasis on understanding concepts of properties of arithmetic, signed numbers, fractions, decimals, percents, algebraic expressions, linear equations and inequality, and quadratic equations with function notations. This course helps students gain mathematical literacy in the real world and have a strong foundation on these mathematical concepts for future study in math and other disciplines.

COURSE LEARNING OUTCOMES

Students will be able to:

1. Use appropriate mathematical vocabulary and notations.
2. Understand arithmetic properties and apply them correctly.
3. Develop number sense using appropriate operations with whole numbers, integers, fractions, and decimals.
4. Solve real world applications using signed numbers.
5. Solve applied problems using rate, ratio, and percent.
6. Convert measurements between American units and metric units.
7. Develop a sense of variables in evaluating formulas, constructing algebraic expressions, and interpreting in context of real word problems.
8. Solve linear equations with rational coefficients using the properties of equality.
9. Develop function sense symbolically, numerically and graphically using various real word problems.
10. Model and solve linear functions and quadratic functions.
11. Develop mathematical intuition and a relevant base of mathematical knowledge.
12. Gain experiences that connect learning with real world applications.

MATH II - Mathematical Problem Solving II

MATH II focuses on algebraic and graphical problem solving skills with emphasis on understanding, interpreting, and analyzing functions such as linear, quadratic, rational, radical, exponential, logarithmic, and trigonometric functions. This course helps diverse learners master these mathematical concepts and apply them to solve real world problems.

COURSE LEARNING OUTCOMES

Students will be able to:

1. Develop a function sense by understanding and being able to use definitions of and notations for function, domain, and range.
2. Set up and solve a system of equations and inequalities using different methods for given various word problems.
3. Understand specific functions (linear, quadratic, rational, radical, exponential, and logarithmic, trigonometric functions) and their properties verbally, visually, numerically, and symbolically. Be able to navigate between these five perspectives for these functions.
4. Given a function or functions, understand ways to create a new function (via addition, composition, and transformations) and analyze properties of the new function.
5. Understand when a function has an inverse and be able to identify if a specific function, described numerically or visually, has an inverse function.
6. Given a linear, exponential, or logarithmic, function, determine its inverse function.
7. Apply and model real world situations using linear, quadratic, rational, radical, exponential, or logarithmic, trigonometric functions. Interpret and make predictions from a model.
8. Find a pattern linking the ratio of sides of a triangle with the angles and hence understand the concepts of sine, cosine and tangent ratios of angles.
9. Develop mathematical intuition and a relevant base of mathematical knowledge.
10. Gain experiences that connect learning with real world applications.