Algebra 1 Sem 1

1. Representing Relationships
   1. Quantitative Reasoning
      1. Instruction
         1. What is quantitative reasoning?
      2. Assignment
         1. Practice analyzing quantitative relationships.
      3. Quiz
   2. Dimensional Analysis
      1. Instruction
      2. Assignment
         1. Practice converting units and comparing quantities.
      3. Assignment
         1. Read about the mathematics of BMX racing.
      4. Quiz
   3. Writing and Solving Equations in Two Variables
      1. Instruction
         1. What kind of word problem can be solved with a two-variable equation?
      2. Assignment
         1. Practice using two-variable equations to solve problems.
      3. Quiz
         1. Writing and Graphing Equations in Two Variables
      4. Instruction
         1. What can a coordinate graph tell you about a relationship between quantities in a real-world scenario?
      5. Assignment
         1. Practice writing and graphing equations with two variables.
      6. Quiz
   4. Introduction to Functions
      1. Instruction
         1. What is a function?
      2. Assignment
         1. Practice recognizing functional relationships.
      3. Quiz
   5. Function Notation
      1. Instruction
         1. Why is function notation used?
      2. Assignment
         1. Practice using function notation.
      3. Quiz
   6. Evaluating Functions
      1. Instruction
         1. How are the different representations of a function used to determine the relationship between the quantities?
      2. Assignment
         1. Practice analyzing functions.
      3. Assignment
         1. Read a biography about Leonhard Euler.
      4. Quiz
   7. Analyzing Graphs
      1. Instruction
         1. What can you tell about a functional relationship from its graph?
      2. Assignment
         1. Practice analyzing graphs to determine key features.
      3. Quiz
   8. Analyzing Tables
      1. Instruction
         1. What can you tell about a functional relationship given in a table?
      2. Assignment
         1. Practice using a table to determine key features of the graph of a continuous function.
      3. Quiz
   9. Recognizing Patterns
      1. Instruction
         1. How are functions used to describe patterns?
      2. Assignment
         1. Practice analyzing sequences.
      3. Quiz
   10. **Unit Test - (Must be taken in Person)**
       1. Unit Test Review
2. Linear Functions
   1. Introduction to Linear Functions
      1. Instruction
         1. What type of relationship has a graph that is a line?
      2. Assignment
         1. Practice with rate of change and linear functions.
      3. Quiz
   2. Slope of a Line
      1. Instruction
         1. What does the slope of a line mean, and how can you find it?
      2. Assignment
         1. Practice describing, finding, and interpreting slope.
      3. Assignment
         1. Read a biography about René Descartes.
      4. Quiz
   3. Slope-Intercept Form of a Line
      1. Instruction
         1. Can you tell what the graph of a line will look like without finding points or graphing it?
      2. Assignment
         1. Practice applying the slope-intercept form of an equation.
      3. Quiz
   4. Point-Slope Form of a Line
      1. Instruction
         1. What is the point-slope form of a line, and why would you want to use it?
      2. Assignment
         1. Practice using point-slope form to write and graph linear functions.
      3. Quiz
   5. Writing Linear Equations
      1. Instruction
         1. What information is needed to write the equation of a line?
      2. Assignment
         1. Practice writing linear equations in different forms.
      3. Quiz
   6. Special Linear Relationships
      1. Instruction
         1. How will constraints on the y-intercept or domain affect a linear relationship?
      2. Assignment
         1. Practice representing special linear relationships.
      3. Assignment
         1. Explore direct variation.
      4. Quiz
   7. **Unit Test - (Must be taken in Person)**
      1. Unit Test Review
3. Linear Equations and Inequalities
   1. Solving Linear Equations: Variable on One Side
      1. Instruction
         1. How is the intersection point of two linear functions related to solving a linear equation?
      2. Assignment
         1. Practice writing and solving linear equations in one variable.
      3. Assignment
         1. Read about the history of solving linear equations.
      4. Quiz
   2. Solving Linear Equations: Variables on Both Sides
      1. Instruction
         1. Can an equation with the variable on both sides be written as a two-step equation?
      2. Assignment
         1. Practice writing and solving linear equations with variables on both sides.
      3. Quiz
   3. Solving Linear Equations: Distributive Property
      1. Instruction
         1. Can an equation with the variable inside grouping symbols be written as a two-step equation?
      2. Assignment
         1. Practice solving equations using the distributive property.
      3. Quiz
   4. Solving Mixture Problems
      1. Instruction
         1. How can you use tables to help solve mixture problems?
      2. Assignment
         1. Practice solving mixture problems.
      3. Assignment
         1. Explore mixture problems.
      4. Quiz
   5. Solving Rate Problems
      1. Instruction
         1. How can you use tables to help solve rate and work problems?
      2. Assignment
         1. Practice using tables to organize, write equations, and solve time-distance-rate and work problems.
      3. Quiz
   6. Literal Equations
      1. Instruction
         1. What does it mean to solve for a variable when the solution is not a number?
      2. Assignment
         1. Practice solving and using literal equations.
      3. Quiz
         1. Solving Absolute Value Equations
      4. Instruction
         1. How is solving an absolute value equation similar to and different from solving a linear equation?
      5. Assignment
         1. Practice creating and solving absolute value equations.
      6. Quiz
   7. Solving One-Variable Inequalities
      1. Instruction
         1. Can all one-variable inequalities be simplified to a two-step inequality?
      2. Assignment
         1. Practice solving and graphing multiple-step, one-variable linear inequalities.
      3. Quiz
   8. Introduction to Compound Inequalities
      1. Instruction
         1. What is a compound inequality and what does its solution look like?
      2. Assignment
         1. Practice with compound inequalities.
      3. Quiz
   9. **Unit Test - (Must be taken in Person)**
      1. Unit Test Review
4. Systems of Equations and Inequalities
   1. Solving Systems of Linear Equations: Graphing
      1. Instruction
         1. How can technology and estimation be useful for solving a system of linear equations graphically?
      2. Assignment
         1. Practice analyzing a system of linear equations with one solution.
      3. Quiz
         1. Solving Systems of Linear Equations: Substitution
      4. Instruction
         1. For a system of two equations, how can substituting for one variable help you solve for the other?
      5. Assignment
         1. Practice finding solutions to systems of equations using substitution.
      6. Quiz
   2. Solving Systems: Introduction to Linear Combinations
      1. Instruction
         1. How does adding the two equations in a system allow you to solve it?
      2. Assignment
         1. Practice solving a system of linear equations using the linear combination method.
      3. Quiz
   3. Solving Systems of Linear Equations: Linear Combinations
      1. Instruction
         1. Why are equivalent equations important when solving a system using linear combinations?
      2. Assignment
         1. Practice using linear combinations to solve systems of equations.
      3. Quiz
   4. Modeling with Systems of Linear Equations
      1. Instruction
         1. What type of problem can be modeled and solved with a linear system?
      2. Assignment
         1. Practice modeling with systems of linear equations.
      3. Quiz
   5. Graphing Two-Variable Linear Inequalities
      1. Instruction
         1. What does the graph of a two-variable linear inequality look like?
      2. Assignment
         1. Practice interpreting two-variable linear inequalities.
      3. Quiz
   6. Modeling with Two-Variable Linear Inequalities
      1. Instruction
         1. What type of problem can be modeled and solved with a two-variable linear inequality?
      2. Assignment
         1. Practice solving problems with two-variable linear inequalities.
      3. Quiz
   7. Solving Systems of Linear Inequalities
      1. Instruction
         1. What does it mean to be a solution of a system of linear inequalities?
      2. Assignment
         1. Practice analyzing solutions to a system of two-variable linear inequalities.
      3. Quiz
   8. Modeling with Systems of Linear Inequalities
      1. Instruction
         1. What type of problem can be modeled and solved with a system of linear inequalities?
      2. Assignment
         1. Practice modeling and solving systems of linear inequalities.
      3. Quiz
   9. **Unit Test - (Must be taken in Person)**
      1. Unit Test Review
5. Nonlinear Functions
   1. Linear Piecewise Defined Functions
      1. Instruction
         1. What does it mean for a function to be piecewise defined?
      2. Assignment
         1. Practice analyzing, graphing, and defining piecewise functions.
      3. Quiz
   2. Step Functions
      1. Instruction
         1. What relationships have graphs that look like steps?
      2. Assignment
         1. Practice analyzing step functions.
      3. Quiz
   3. Absolute Value Functions and Translations
      1. Instruction
         1. What does the graph of an absolute value function look like?
      2. Assignment
         1. Practice analyzing absolute value functions.
      3. Quiz
         1. Reflections and Dilations of Absolute Value Functions
      4. Instruction
         1. How does a constant in front of the absolute value symbol change the graph of the absolute value function?
      5. Assignment
   4. Practice graphing dilations and reflections of absolute value functions.
      1. Quiz
         1. The Square Root Function
      2. Instruction
         1. What is the square root function?
      3. Assignment
         1. Practice working with square roots and square root functions.
      4. Assignment
         1. Read about the history of the square root.
      5. Quiz
         1. The Cube Root Function
      6. Instruction
         1. What does the graph of a cube root function look like?
      7. Assignment
         1. Practice graphing cube root functions.
      8. Quiz
   5. Performance Task: Construct and Analyze Piecewise Functions
      1. Instruction
         1. Learn about nonlinear relationships.
   6. **Unit Test - (Must be taken in Person)**
      1. Unit Test Review
6. Cumulative Exam - (Must be taken in Person)
   1. Cumulative Exam Review