Geometry Sem 1

1. Foundations of Euclidean Geometry
   1. Euclidean Geometry
      1. Instruction
         1. What are the basic tools of Euclidean geometry?
      2. Assignment
         1. Practice describing and identifying undefined terms.
      3. Quiz
   2. Defining Terms
      1. Instruction
         1. How can undefinable terms be used to create precise mathematical definitions?
      2. Assignment
         1. Practice using undefined terms in definitions and when analyzing diagrams.
      3. Quiz
   3. Measuring Length and Angles
      1. Instruction
         1. How can you find the measures of line segments and angles?
      2. Assignment
         1. Practice determining the measures of line segments and angles.
      3. Quiz
   4. Introduction to Proof
      1. Instruction
         1. What is necessary to prove a statement is true?
      2. Assignment
         1. Practice with proofs.
      3. Quiz
   5. Linear Pairs and Vertical Angles
      1. Instruction
         1. What angle relationships are formed when lines intersect?
      2. Assignment
         1. Practice with linear pairs and vertical angles.
      3. Quiz
   6. Complementary and Supplementary Angles
      1. Instruction
         1. How are angle relationships used to solve for angle measures?
      2. Assignment
         1. Practice solving problems involving complementary and supplementary angles.
      3. Quiz
   7. Performance Task: Constructions
      1. Instruction
         1. How do you "construct" with a compass and straightedge?
      2. Preparing for Your Performance Task
         1. Prepare to do and justify constructions in a Performance Task.
   8. **Unit Test - (Must be taken in Person)**
      1. Unit Test Review
2. Geometric Transformations
   1. Introduction to Transformations
      1. Instruction
         1. How can you determine if a figure has been transformed and, if so, the type of transformation?
      2. Assignment
         1. Practice working with transformations.
      3. Quiz
   2. Reflections
      1. Instruction
         1. How are reflections described mathematically?
      2. Assignment
         1. Practice working with reflections.
      3. Quiz
   3. Translations
      1. Instruction
         1. How are translations described mathematically?
      2. Assignment
         1. Practice translating figures.
      3. Quiz
   4. Rotations
      1. Instruction
         1. How are rotations defined mathematically?
      2. Assignment
         1. Practice with rotations.
      3. Quiz
   5. Compositions
      1. Instruction
         1. What does it mean to compose transformations?
      2. Assignment
         1. Practice composing transformations and writing rules for a sequence of transformations.
      3. Quiz
   6. Symmetry
      1. Instruction
         1. How can you identify symmetry in a figure?
      2. Assignment
         1. Practice identifying reflectional and rotational symmetry.
      3. Quiz
   7. **Unit Test - (Must be taken in Person)**
      1. Unit Test Review
3. Angles and Lines
   1. Parallel and Perpendicular Lines
      1. Instruction
         1. What special relationships exist between two lines or a line segment and a line?
      2. Assignment
         1. Practice with parallel and perpendicular lines.
      3. Quiz
   2. Lines Cut by a Transversal
      1. Instruction
         1. What angle relationships are formed when parallel lines are cut by a transversal?
      2. Assignment
         1. Practice with lines cut by a transversal.
      3. Quiz
   3. Proving Lines Parallel
      1. Instruction
         1. How can you use angle measures to prove that lines are parallel?
      2. Assignment
         1. Practice writing proofs and solving problems using converses of the parallel line theorems.
      3. Quiz
   4. Slopes of Parallel and Perpendicular Lines
      1. Instruction
         1. What is the relationship between slopes of parallel or perpendicular lines?
      2. Assignment
         1. Practice using slope to solve problems with parallel and perpendicular lines.
      3. Quiz
   5. Writing Linear Equations
      1. Instruction
         1. How do you write equations of lines given that they are parallel or perpendicular to a given line?
      2. Assignment
         1. Practice writing equations of parallel and perpendicular lines.
      3. Quiz
   6. **Unit Test - (Must be taken in Person)**
      1. Unit Test Review
4. Triangles
   1. Triangle Angle Theorems
      1. Instruction
         1. How are the interior and exterior angles of a triangle related?
      2. Assignment
         1. Practice relating and calculating the measures of interior and exterior angles of a triangle.
      3. Quiz
   2. Triangles and Their Side Lengths
      1. Instruction
         1. How are the angles and side lengths within triangles related?
      2. Assignment
         1. Practice determining angle measure and side length relationships within triangles.
      3. Quiz
   3. Triangle Inequalities
      1. Instruction
         1. What are the relationships between side lengths and angle measures of triangles?
      2. Assignment
         1. Practice relating the side lengths and angle measures of one or two triangles.
      3. Quiz
   4. Isosceles Triangles
      1. Instruction
         1. What properties do isosceles triangles have?
      2. Assignment
         1. Practice applying isosceles triangle theorems to solve problems.
      3. Quiz
   5. Centroid and Orthocenter
      1. Instruction
         1. What are the centroid and orthocenter of a triangle?
      2. Assignment
         1. Practice with orthocenters and centroids.
      3. Quiz
   6. Incenter and Circumcenter
      1. Instruction
         1. What are the incenter and circumcenter of a triangle?
      2. Assignment
         1. Practice using the characteristics of the incenter and circumcenter of a triangle.
      3. Quiz
   7. **Unit Test - (Must be taken in Person)**
      1. Unit Test Review
5. Triangle Congruence
   1. Congruent Figures
      1. Instruction
         1. What does it mean for two figures to be congruent?
      2. Assignment
         1. Practice working with congruent figures.
      3. Quiz
   2. Triangle Congruence: SAS
      1. Instruction
         1. Are triangles congruent if two pairs of corresponding sides and one pair of angles are congruent?
      2. Assignment
         1. Practice using the SAS congruence theorem.
      3. Quiz
   3. Triangle Congruence: ASA and AAS
      1. Instruction
         1. What additional information is necessary to prove triangle congruency, given a pair of congruent corresponding angles?
      2. Assignment
         1. Practice using ASA and AAS congruence theorems.
      3. Quiz
   4. Triangle Congruence: SSS and HL
      1. Instruction
         1. Are triangles congruent if three pairs of corresponding sides are congruent?
      2. Assignment
         1. Practice using the SSS and HL congruence theorems.
      3. Quiz
   5. Using Triangle Congruence Theorems
      1. Instruction
         1. How can you prove that corresponding parts of congruent triangles are congruent?
      2. Assignment
         1. Practice with congruency theorems and CPCTC.
      3. Quiz
   6. Performance Task: Congruency Proofs
      * 1. Preparing for Your Performance Task
        2. Prepare to show what you know about writing proofs in a Performance Task.
   7. **Unit Test - (Must be taken in Person)**
      1. Unit Test Review
6. Similarity Transformations
   1. Dilations
      1. Instruction
         1. How is a scale factor used to find measures in figures under a dilation?
      2. Assignment
         1. Practice solving dilation problems.
      3. Quiz
   2. Similar Figures
      1. Instruction
         1. How can you use dilations in the coordinate plane to create similar figures?
      2. Assignment
         1. Practice with dilations and similar figures.
      3. Quiz
   3. Triangle Similarity: AA
      1. Instruction
         1. How can similarity transformations and the AA similarity theorem be used to prove triangles are similar?
      2. Assignment
         1. Practice identifying similarity transformations.
      3. Quiz
   4. Triangle Similarity: SSS and SAS
      1. Instruction
         1. How can the SSS and SAS similarity theorems be used to prove triangles are similar?
      2. Assignment
         1. Practice applying the SSS and SAS similarity theorems.
      3. Quiz
   5. Using Triangle Similarity Theorems
      1. Instruction
         1. How can similar triangles be created by drawing lines through a triangle?
      2. Assignment
         1. Practice applying the side-splitter theorem, its converse, and the triangle midsegment theorem.
      3. Quiz
   6. Right Triangle Similarity
      1. Instruction
         1. What relationships are formed when the altitude from the right angle of a triangle is drawn?
      2. Assignment
         1. Practice with right triangle similarity.
      3. Quiz
   7. Directed Line Segments and Modeling
      1. Instruction
         1. What is a directed line segment, and what does it mean to partition it?
      2. Assignment
         1. Practice with directed line segments.
      3. Quiz
   8. **Unit Test - (Must be taken in Person)**
      1. Unit Test Review
7. Cumulative Exam - (Must be taken in Person)
   1. Cumulative Exam Review