

Unit 1 Concepts

CONSTRUCTIONS

You should be able to explain how you would:

1. Copy a line segment
2. Copy an angle
3. Bisect a segment
4. Bisect an angle
5. Construct a line parallel to a line through a given point
6. Construct a line perpendicular to a given line
7. Construct an equilateral triangle, regular hexagon, and square inscribed in a circle
8. Construct the centroid of a triangle (by first constructing the medians)

PARALLELOGRAMS

Understand and be able to apply the following:

1. Opposite sides are congruent
2. Opposite angles are congruent
3. The diagonals bisect each other
4. Rectangles have congruent diagonals & the diagonals bisect each other

TRIANGLE THEOREMS

Understand and be able to apply the following:

1. Triangle Sum Theorem: The angles inside of a triangle sum to 180 degrees.
2. Isosceles Triangle Theorem: The base angles in an isosceles triangle are congruent.
3. Triangle Midsegment Theorem: The midsegment is parallel to the third side of the triangle and half the length of the third side.
4. Triangle Proportionality Theorem: If a line parallel to a side of a triangle intersects the other two sides, then it divides those sides proportionally.

THEOREMS ABOUT LINES AND ANGLES

1. Vertical Angles Theorem: Vertical angles are congruent.
2. Alternate Interior Angles Theorem: When two parallel lines are cut by a transversal, the alternate interior angles are congruent.
3. Corresponding Angles Theorem: When two parallel lines are cut by a transversal, the corresponding angles are congruent.
4. Perpendicular Bisector Theorem: If a point is on the perpendicular bisector of a line segment, it is equidistant from the endpoints of the segment.

CONGRUENCE

1. The two figures are the same shape and same size.
2. Two figures are congruent if one figure can be mapped onto the other through a sequence of rigid motions.
3. Corresponding angles are congruent; corresponding sides are congruent
4. CPCTC: Corresponding Parts of Congruent Triangles are Congruent
5. The Triangle Congruence Theorems can be used to determine if two triangles are congruent: SSS, SAS, ASA, AAS, HL

SIMILARITY

1. Two figures are the same shape but a different size.
2. Two figures are similar if one figure can be mapped onto the other through a sequence of similarity transformations.
3. The original figure is dilated by a scale factor to create the new figure; so...scale factor = a part of the new figure divided by the corresponding part of the original figure
4. Corresponding angles are congruent; corresponding sides are proportional
5. The Triangle Similarity Theorems can be used to determine if two triangles are similar: SSS, SAS, AA