

similar polygons: polygons in which

1. the ratios of the measures of corresponding sides are equal
2. corresponding angles are congruent

dilation: an enlargement, similar and larger

reduction: similar and smaller

Theorem: **The ratio of the perimeters of two similar polygons equals the ratio of any pair of corresponding sides.**

Theorem: **The ratios of the areas of two similar polygons equals the square of the ratio of any pair of corresponding sides.**

Methods of proving triangles similar

Geometry 8.3

AAA: **If there exists a correspondence between the vertices of two triangles such that the three angles of one triangle are congruent to the corresponding angles of the other triangle, then the triangles are similar.**

AA: **If there exists a correspondence between the vertices of two triangles such that the two angles of one triangle are congruent to the corresponding angles of the other triangle, then the triangles are similar.**

SSS \approx : **If there exists a correspondence between the vertices of two triangles such that the ratios of the measures of corresponding sides are equal, then the triangles are similar.**

SAS \approx : If there exists a correspondence between the vertices of two triangles such that the ratios of the measures of two pairs of corresponding sides are equal and the included angles are congruent, then the triangles are similar.

If you know polygons are similar then you know that the ratios of corresponding sides are equal (sides are proportional), and the corresponding angles are congruent.

Geometry 8.5

Theorem: If a line is parallel to one side of a triangle and intersects the other two sides, it divides those two sides proportionally. (*Side-Splitter*)

Theorem: If three or more parallel lines are intersected by two transversals, the parallel lines divide the transversals proportionally.

Theorem: If a ray bisects an angle of a triangle, then it divides the opposite side into segments that are proportional to the adjacent sides. (*Angle Bisector*)