List three short cuts you can use to show that two triangles are similar and use *full sentences* to *explain* what they mean.

1. $SSS \sim$ **(Side-Side-Side)** -- If you show that all three pairs of corresponding sides share a common ratio, then the triangles are similar *and* the corresponding angles are *congruent.*

2. $SAS \sim$ **(Side-Angle-Side)** -- If you show that two pairs of corresponding sides share a common ratio *and* the angles between them are congruent, then the triangles are similar *and* the *other two pairs* of corresponding angles are congruent *and* the remaining pair of sides share the same common ratio.

3. $AA \sim$ **(Angle-Angle)** -- If you show that two pairs of corresponding angles are congruent, the triangles are similar, which means the remaining pair of corresponding angles is congruent *and* all three pairs of corresponding sides share a common ratio.

ΔABC **and** ΔXYZ **are similar. List everything you know about the angles and sides of these two triangles. Be specific and clear.**

$$\frac{AB}{XY} = \frac{BC}{YZ} = \frac{AC}{XZ};$$
$$\angle ABC \cong \angle XYZ;$$
$$\angle BCA \cong \angle YZX;$$
$$\angle BAC \cong \angle YXZ$$

List five short cuts you can use to show that two triangles are congruent and use *full sentences* to *explain* what they mean.

1. $SSS \cong$ **(Side-Side-Side)** -- You can show that all three pairs of corresponding sides are congruent.

2. $SAS \cong$ **(Side-Angle-Side)** -- You can show that two pairs of corresponding *and* the angles between them are congruent.

3. $AAS \cong$ **(Angle-Angle-Side)** -- You can show that two pairs of corresponding angles are congruent *and* a pair of corresponding sides not between those angles is congruent.

4. $ASA \cong$ **(Angle-Side-Angle)** -- You can show that two pairs of corresponding angles are congruent *and* the pair of corresponding sides between those angles is congruent.

5. $HL \cong$ **(Hypoteneuse-Leg)** -- You can show that the pair of hypotenuses and one pair of legs on a pair of right triangles are congruent.

NOTE: "Similar" is not used to describe pairs of angles or pairs of sides. Such pairs are either "congruent," or they are not. The sides of similar triangles are said to share a common ratio – that is, the quotient of each pair of corresponding sides is the same.

ΔABC and ΔXYZ are congruent. List everything you know about the angles and sides of these two triangles. Be specific and clear.

$$AB \cong XY;$$

$$BC \cong YZ;$$

$$AC \cong XZ;$$

$$\angle ABC \cong \angle XYZ;$$

$$\angle BCA \cong \angle YZX;$$

$$\angle BAC \cong \angle YXZ$$

State two ways you can *know* that two lines are parallel:

1. If alternate interior angles formed by a transversal crossing two lines are congruent, then the lines are parallel.
2. If same-side interior angles formed by a transversal crossing two lines are supplementary, then the lines are parallel.

State two things you *know* about the angles formed by a transversal that crosses two lines that are parallel:

1. A transversal that crosses two parallel lines will create same-side interior angles that are supplementary.
2. A transversal that crosses two parallel lines will create alternate interior angles that are congruent.

What is the triangle inequality theorem?

The sum of the lengths of any two sides of a triangle is always greater than the length of the remaining side.

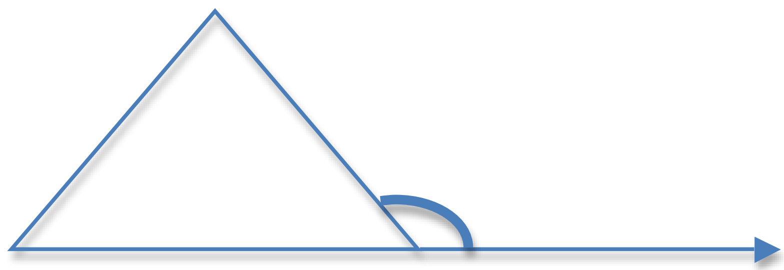
What is the triangle angle sum theorem?

The sum of the measures of the angles of a triangle is always 180 degrees.

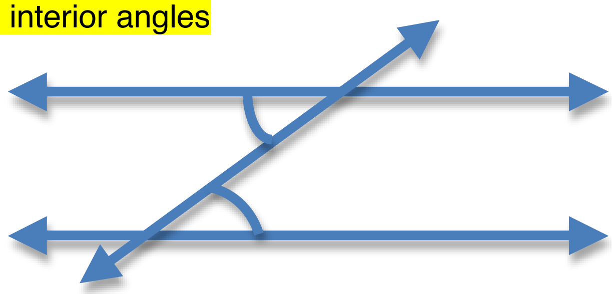
NOTE: "Similar" is not used to describe pairs of angles or pairs of sides. Such pairs are either "congruent," or they are not. The sides of similar triangles are said to share a common ratio – that is, the quotient of each pair of corresponding sides is the same.

Draw a diagram showing an example of each of the following angle relationships:

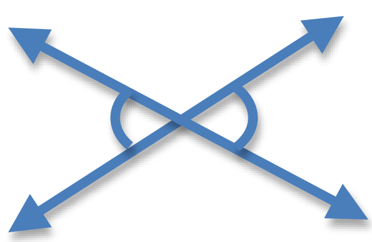
exterior angle (of a triangle)



alternate interior angles



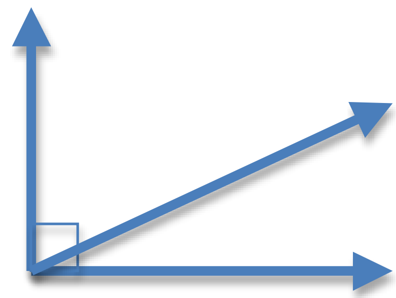
vertical angles



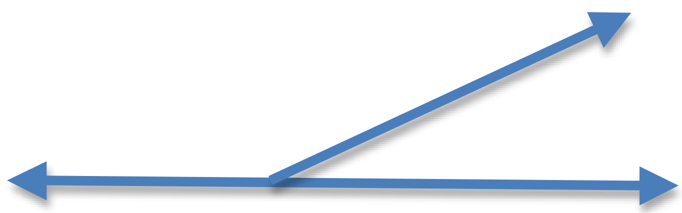
NOTE: "Similar" is not used to describe pairs of angles or pairs of sides. Such pairs are either "congruent," or they are not. The sides of similar triangles are said to share a common ratio – that is, the quotient of each pair of corresponding sides is the same.

Draw a diagram showing an example of each of the following angle relationships *(continued)*:

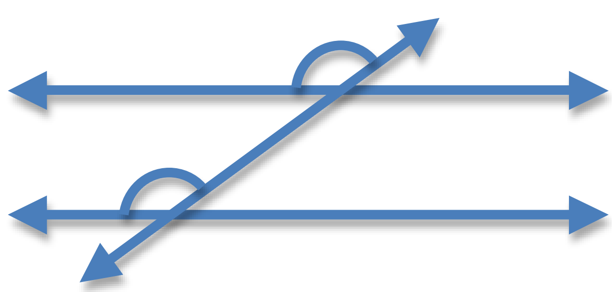
complementary angles



linear pair



corresponding angles



NOTE: "Similar" is not used to describe pairs of angles or pairs of sides. Such pairs are either "congruent," or they are not. The sides of similar triangles are said to share a common ratio – that is, the quotient of each pair of corresponding sides is the same.

Use a full sentence to write a definition for each of the following terms:

Complementary Angles are two angles whose measures add up to 90 degrees.

Supplementary Angles are two angles whose measures add up to 180 degrees.

A *Diagonal* is a line segment that connects two vertices of a polygon but is not a side.

A *Vertex* is the place where two or more line segments or rays meet to form a corner, such as in a polygon or an angle. (*Vertices* is the plural of *vertex*.)

A *Linear Pair* is a pair of adjacent angles that form a straight line.

Vertical Angles are the opposite (*i.e.,* the non-adjacent) angles that are formed by two intersecting lines.

NOTE: "Similar" is not used to describe pairs of angles or pairs of sides. Such pairs are either "congruent," or they are not. The sides of similar triangles are said to share a common ratio – that is, the quotient of each pair of corresponding sides is the same.