

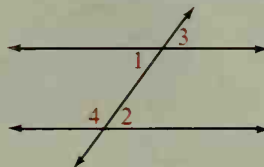
Properties of Parallel and Perpendicular Lines (pages 56, 73–74, 78–79, 535)

If two parallel lines are cut by a transversal, then alternate interior angles are congruent, corresponding angles are congruent, and same-side interior angles are supplementary.

$$m\angle 1 = m\angle 2$$

$$m\angle 3 = m\angle 2$$

$$m\angle 1 + m\angle 4 = 180$$



If two lines are perpendicular, they form congruent adjacent angles.

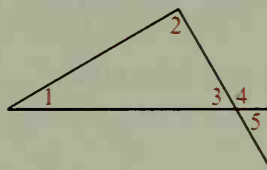
Angle Measure Relationships (pages 51, 94–95, 102, 204)

Vertical angles are congruent.

$$m\angle 3 = m\angle 5$$

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

$$m\angle 1 + m\angle 2 + m\angle 3 = 180$$



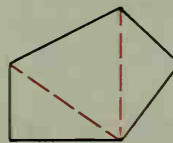
The measure of an exterior angle of a triangle equals the sum of the measures of the two remote interior angles.

$$m\angle 4 = m\angle 1 + m\angle 2$$

The measure of an exterior angle of a triangle is greater than the measure of either remote interior angle.

The sum of the measures of the angles of a convex polygon with n sides is $(n - 2)180$.

For example, the sum of the measures of the angles of the pentagon at the right is $3 \cdot 180 = 540$.



Triangle Side Relationships (pages 219–220, 228–229)

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

For example, $AB + BC > AC$.

If one side of a triangle is longer than a second side, then the angle opposite the first side is larger than the angle opposite the second side. The converse is also true.

For example, if $AC > BC$, then $m\angle B > m\angle A$;
if $m\angle C < m\angle B$, then $AB < AC$.

