Review and Self-Study: Angle and Line Relationships

Adjacent Angles: Two angles are **Adjacent** when they have a common side
and a common vertex (corner point) and don't overlap.
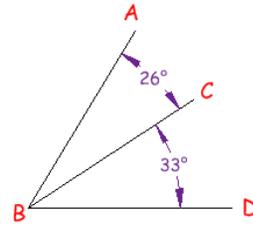
Complementary Angles: Two angles are **Complementary** when their measures **add up to 90 degrees.**
(Note: Complementary angles may or may not be adjacent.)
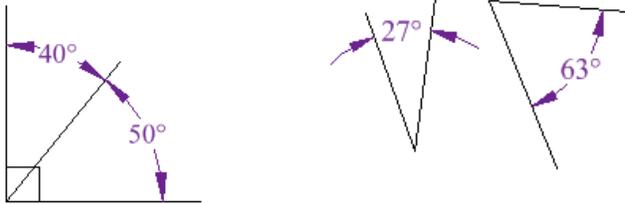
Supplementary Angles: Two Angles are **Supplementary** if their measures **add up to 180 degrees**.
(Note: Supplementary angles may or may not be adjacent.)
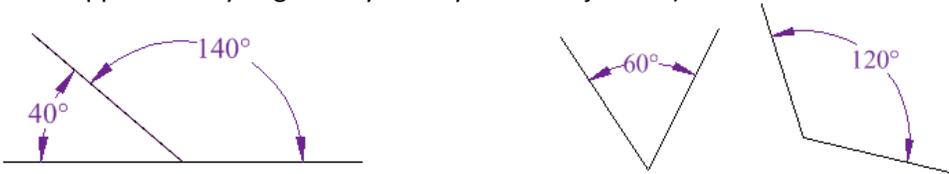
Linear Pair Angles: A pair of adjacent angles formed by intersecting lines. Angles 1 and 2
are a linear pair. So are angles 2 and 4, angles 3 and 4, and angles 1 and 3.
Linear pairs of angles are supplementary.

   If you trace the sides of each angle in a pair of vertical angles, they make a T shape
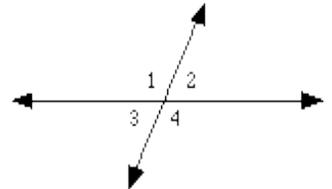
Vertical Angles: Vertical Angles (also called **Vertically Opposite Angles)** are the angles opposite each other when two
lines intersect.
   If you trace the sides of each angle in a pair of vertical angles, they make an X shape.
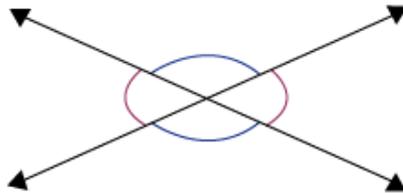
Transversal: A Transversal is a line that crosses at least two or more lines.

The red line is the transversal in each example:
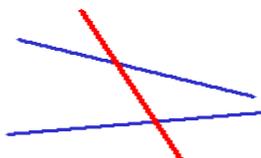
Transversal crossing   this Transversal crosses two   ... and this one cuts
two lines   **parallel lines**   across three lines
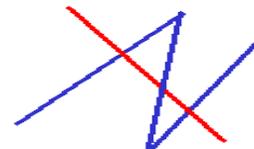
When parallel lines get crossed by a transversal, you can see that many angles are congruent, as in this example to the right:
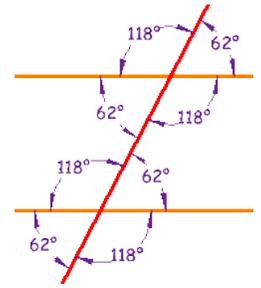
These angles can be made into **pairs of angles** which have special names.

<u>**Corresponding Angles:**</u> The angles in matching corners (or same position related to the lines) are called **Corresponding Angles**.   (Another explanation: Two nonadjacent angles on the same side of the transversal such that one is an exterior angle and the other is an interior angle.)
     If you trace the sides of each angle in a pair of corresponding angles, they make an F shape.
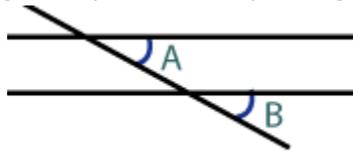
<u>**Alternate Interior Angles:**</u> The **pairs of angles** on opposite sides of the transversal but inside the two lines are called **Alternate Interior Angles**.
     If you trace the sides of each angle in a pair of alternate interior angles, they make a Z shape or an N shape.
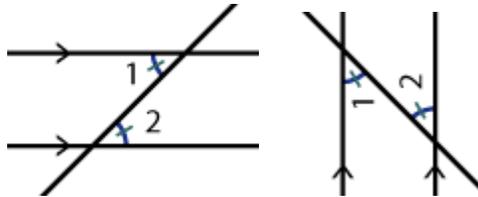
<u>**Same Side Interior Angles**</u> (also called Consecutive Interior Angles): The **pairs of angles** on one side of the transversal but inside the two lines are called **Same Side Interior Angles**.
     If you trace the sides of each angle in a pair of same side interior angles, they make a C shape or a U shape.
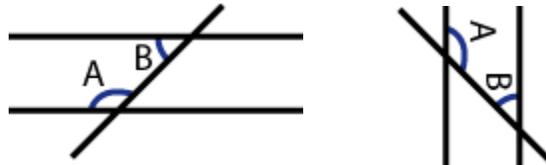
<u>**Alternate Exterior Angles:**</u> The **pairs of angles** on opposite sides of the transversal but outside the two lines are called **Alternate Exterior Angles**.   Sorry, these angles don't appear to make a cool letter shape! ☹
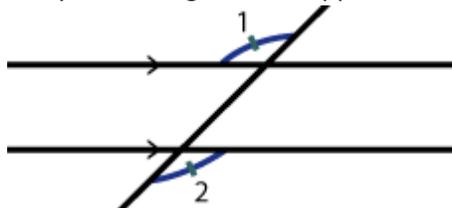
Want to know more?

Click on this link, then click the names of the angle pairs at the bottom of the page more info about them!
http://www.mathsisfun.com/geometry/transversal.html

Another website that tells about angles formed by parallel lines and transversals:
http://algebralab.org/lessons/lesson.aspx?file=Geometry_AnglesParallelLinesTransversals.xml

Video about angles formed by parallel lines and transversals
https://www.khanacademy.org/math/basic-geo/basic-geo-angles/basic-geo-angle-relationships/v/angles-formed-by-parallel-lines-and-transversals