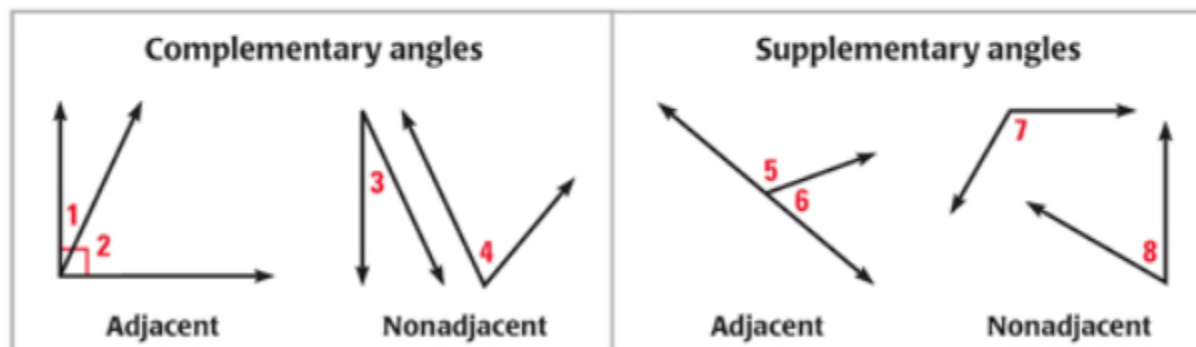


1.5 Describe Angle Pair Relationships

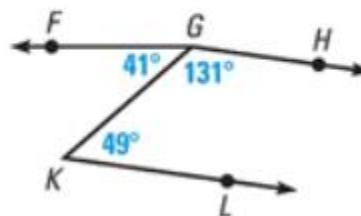
Two angles are **complementary angles** if the sum of their measures is 90° . Each angle is the *complement* of the other. Two angles are **supplementary angles** if the sum of their measures is 180° . Each angle is the *supplement* of the other.

Complementary angles and supplementary angles can be *adjacent angles* or *nonadjacent angles*. **Adjacent angles** are two angles that share a common vertex and side, but have no common interior points.



GUIDED PRACTICE for Example 1

- In the figure, name a pair of complementary angles, a pair of supplementary angles, and a pair of adjacent angles.
- Are $\angle KGH$ and $\angle LKG$ adjacent angles? Are $\angle FGK$ and $\angle FGH$ adjacent angles? *Explain.*

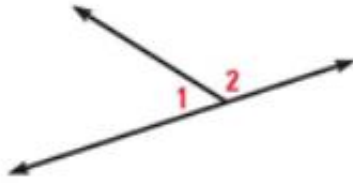


GUIDED PRACTICE for Examples 2 and 3

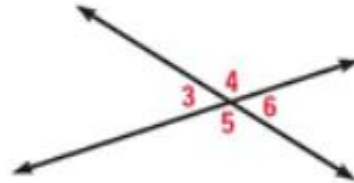
- Given that $\angle 1$ is a complement of $\angle 2$ and $m\angle 2 = 8^\circ$, find $m\angle 1$.
- Given that $\angle 3$ is a supplement of $\angle 4$ and $m\angle 3 = 117^\circ$, find $m\angle 4$.
- $\angle LMN$ and $\angle PQR$ are complementary angles. Find the measures of the angles if $m\angle LMN = (4x - 2)^\circ$ and $m\angle PQR = (9x + 1)^\circ$.

ANGLE PAIRS Two adjacent angles are a **linear pair** if their noncommon sides are opposite rays. The angles in a linear pair are supplementary angles.

Two angles are **vertical angles** if their sides form two pairs of opposite rays.



$\angle 1$ and $\angle 2$ are a linear pair.



$\angle 3$ and $\angle 6$ are vertical angles.

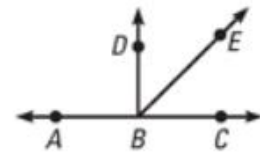
$\angle 4$ and $\angle 5$ are vertical angles.

CONCEPT SUMMARY

For Your Notebook

Interpreting a Diagram

There are some things you can conclude from a diagram, and some you cannot. For example, here are some things that you **can conclude** from the diagram at the right:



- All points shown are coplanar.
- Points A , B , and C are collinear, and B is between A and C .
- \vec{AC} , \vec{BD} , and \vec{BE} intersect at point B .
- $\angle DBE$ and $\angle EBC$ are adjacent angles, and $\angle ABC$ is a straight angle.
- Point E lies in the interior of $\angle DBC$.

In the diagram above, you **cannot conclude** that $\overline{AB} \cong \overline{BC}$, that $\angle DBE \cong \angle EBC$, or that $\angle ABD$ is a right angle. This information must be indicated, as shown at the right.

