Date: 10/7/20

Lesson 1.6 Describing Pairs of Angles

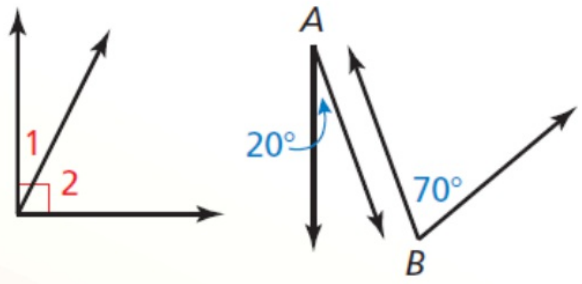
Learning Intent (Target): *Today I will* be able to describe and identify types of angles.

Success Criteria: *I'll know I'll have it when* I'll be able to determine angle measures of complementary and supplementary angles. Identify the difference between vertical & linear pairs of angles.

Accountable Team Task: *Therefore, I can* practice using postulates from interactive flip charts and apply it to problem solving.

Core Concept

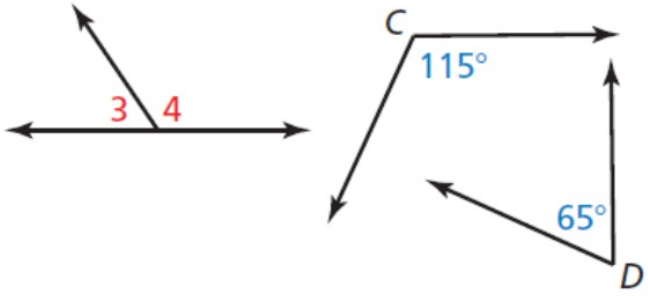
Complementary and Supplementary Angles



$\angle 1$ and $\angle 2$ $\angle A$ and $\angle B$

complementary angles

Two positive angles whose measures have a sum of 90°. Each angle is the *complement* of the other.



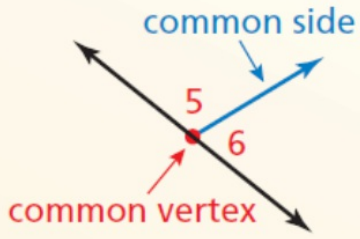
$\angle 3$ and $\angle 4$ $\angle C$ and $\angle D$

supplementary angles

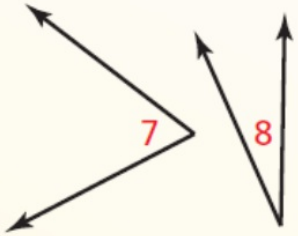
Two positive angles whose measures have a sum of 180°. Each angle is the *supplement* of the other.

Adjacent Angles

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.



$\angle 5$ and $\angle 6$ are adjacent angles.

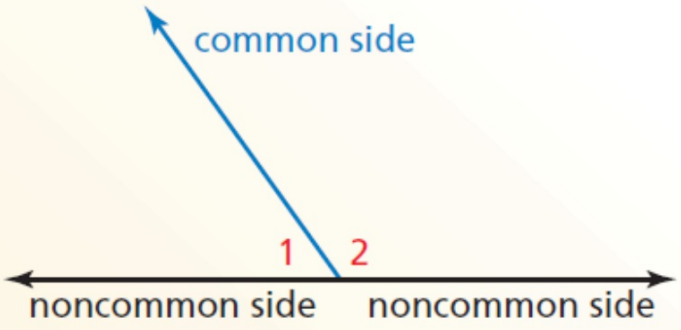


$\angle 7$ and $\angle 8$ are nonadjacent angles.

Core Concept

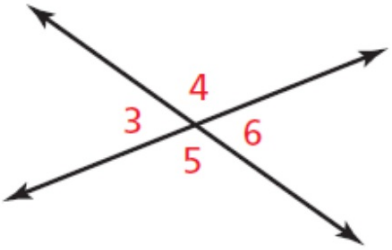
Linear Pairs and Vertical Angles

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



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

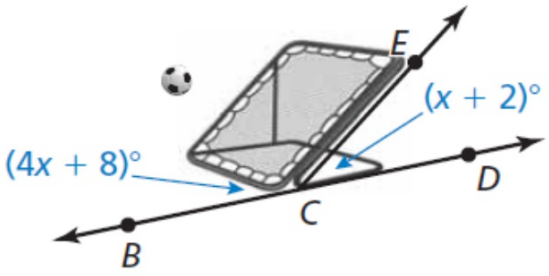
Two angles are **vertical angles** when their sides form two pairs of opposite rays.



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

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

When viewed from the side, the frame of a ball-return net forms a pair of supplementary angles with the ground. Find $m\angle BCE$ and $m\angle ECD$.



Step 1 Use the fact that the sum of the measures of supplementary angles is 180°.

$m\angle BCE + m\angle ECD = 180°$ Write an equation.

$(4x + 8)° + (x + 2)° = 180°$ Substitute angle measures.

$5x + 10 = 180$ Combine like terms.

$x = 34$ Solve for x.

Step 2 Evaluate the given expressions when $x = 34$.

$m\angle BCE = (4x + 8)° = (4 \cdot 34 + 8)° = 144°$

$m\angle ECD = (x + 2)° = (34 + 2)° = 36°$

▶ So, $m\angle BCE = 144°$ and $m\angle ECD = 36°$.

5. $\angle LMN$ and $\angle PQR$ are complementary angles. Find the measures of the angles when $m\angle LMN = (4x - 2)°$ and $m\angle PQR = (9x + 1)°$.

$m\angle LMN = 26°; m\angle PQR = 64°$