Monday, September 29

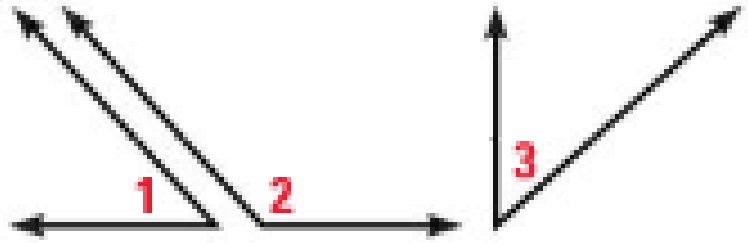
Objective

✓SWBAT construct proofs to make valid statements about angle pairs

DO NOW

GIVEN ▶ $\angle 1$ and $\angle 2$ are supplements.
$\angle 3$ and $\angle 2$ are supplements.

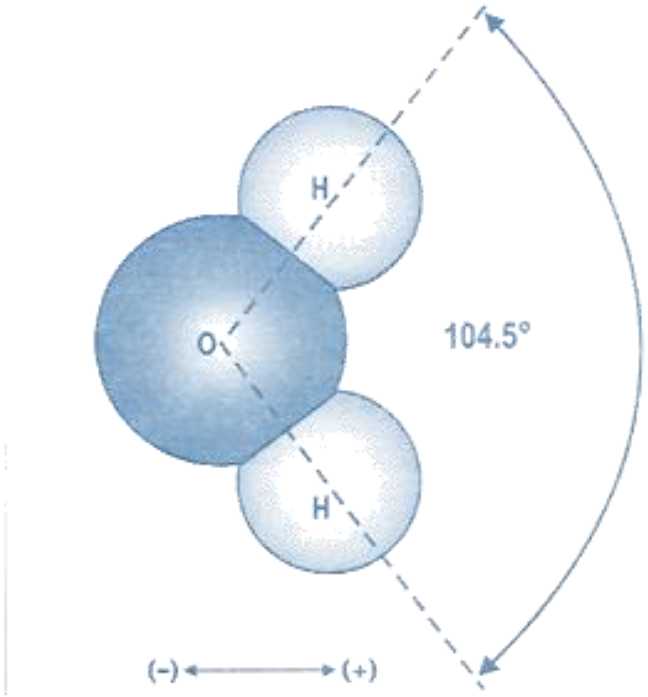
PROVE ▶ $\angle 1 \cong \angle 3$

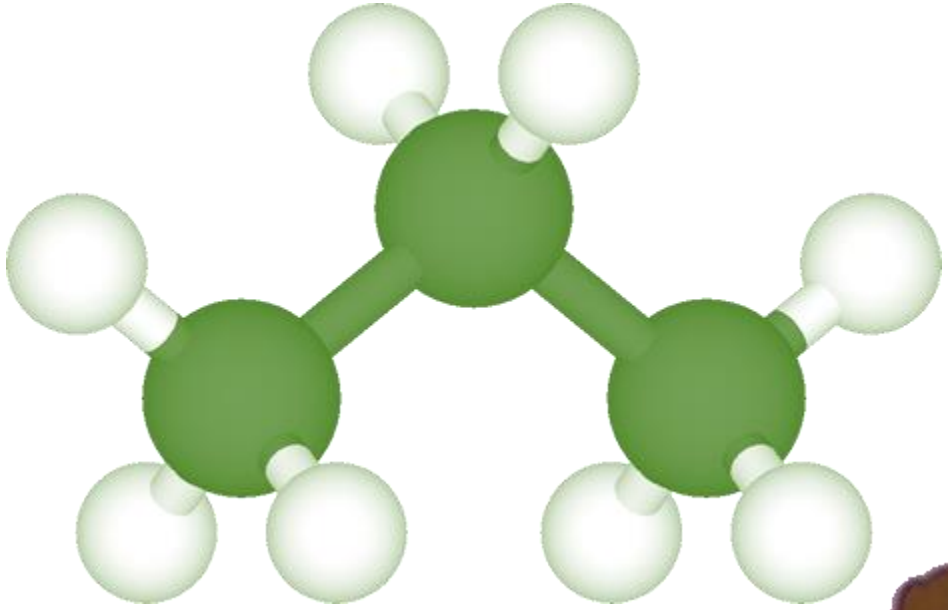


STATEMENTS	REASONS
1. $\angle 1$ and $\angle 2$ are supplements. $\angle 3$ and $\angle 2$ are supplements.	1.
2. $m\angle 1 + m\angle 2 = 180°$ $m\angle 3 + m\angle 2 = 180°$	2.
3. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	3.
4.	4. Subtraction Property
5.	5.

HW p. 127-128 #4-12 even

Proving Angle Pair Relationships





PROPANE

Proving Angle Pair Relationships

- Sometimes a new theorem describes a relationship that is useful in writing proofs. For example, using the Right Angle Congruence Theorem can reduce the number of steps you need to include a proof involving right angles.
- Right Angles Congruence Theorem: *all right angles are congruent*

GIVEN ▶ $\angle 1$ and $\angle 2$ are right angles.

PROVE ▶ $\angle 1 \cong \angle 2$

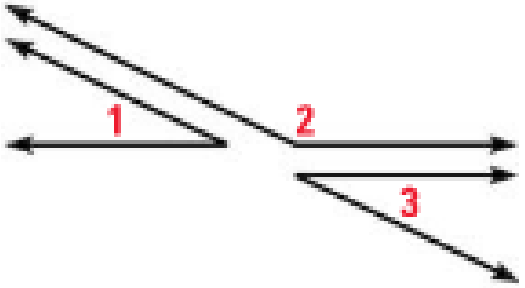
STATEMENTS	REASONS
1. $\angle 1$ and $\angle 2$ are right angles.	1. Given

Proving Angle Pair Relationships

THEOREM 2.4 Congruent Supplements Theorem

If two angles are supplementary to the same angle (or to congruent angles), then they are congruent.

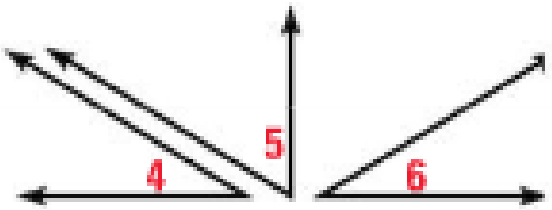
If $\angle 1$ and $\angle 2$ are supplementary and $\angle 3$ and $\angle 2$ are supplementary, then $\angle 1 \cong \angle 3$.



THEOREM 2.5 Congruent Complements Theorem

If two angles are complementary to the same angle (or to congruent angles), then they are congruent.

If $\angle 4$ and $\angle 5$ are complementary and $\angle 6$ and $\angle 5$ are complementary, then $\angle 4 \cong \angle 6$.

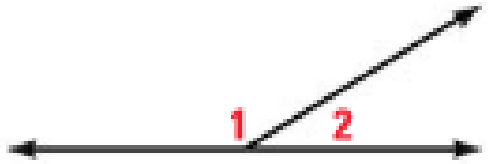


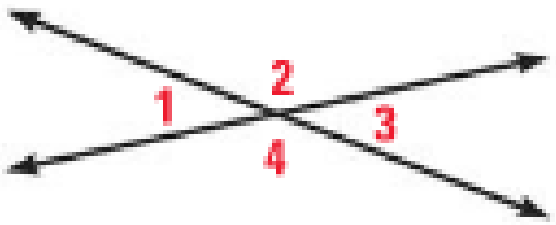
Proving Angle Pair Relationships

POSTULATE 12 Linear Pair Postulate

If two angles form a linear pair, then they are supplementary.

$\angle 1$ and $\angle 2$ form a linear pair, so $\angle 1$ and $\angle 2$ are supplementary and $m\angle 1 + m\angle 2 = 180°$.





$\angle 1 \cong \angle 3, \angle 2 \cong \angle 4$

THEOREM 2.6 Vertical Angles Congruence Theorem

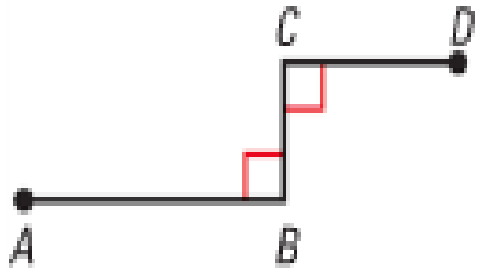
Vertical angles are congruent.

Proving Angle Pair Relationships

Write a proof.

GIVEN ▶ $\overline{AB} \perp \overline{BC}$, $\overline{DC} \perp \overline{BC}$

PROVE ▶ $\angle B \cong \angle C$



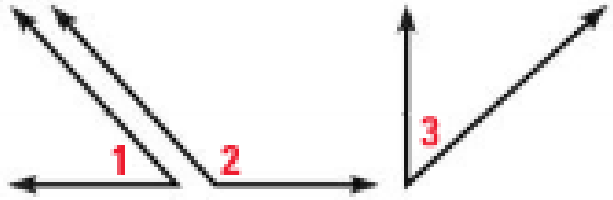
STATEMENTS	REASONS
1. $\overline{AB} \perp \overline{BC}$, $\overline{DC} \perp \overline{BC}$	1. Given

Proving Angle Pair Relationships

Prove that two angles supplementary to the same angle are congruent.

GIVEN ▶ $\angle 1$ and $\angle 2$ are supplements.
$\angle 3$ and $\angle 2$ are supplements.

PROVE ▶ $\angle 1 \cong \angle 3$



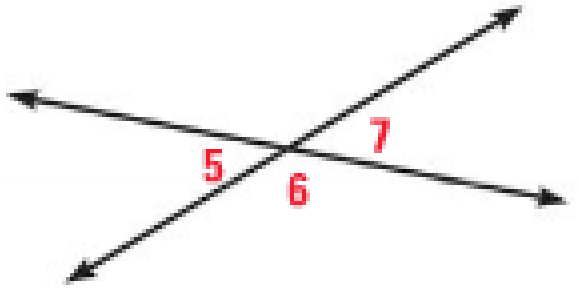
STATEMENTS	REASONS
1. $\angle 1$ and $\angle 2$ are supplements. $\angle 3$ and $\angle 2$ are supplements.	1. Given

Proving Angle Pair Relationships

Prove vertical angles are congruent.

GIVEN ▶ $\angle 5$ and $\angle 7$ are vertical angles.

PROVE ▶ $\angle 5 \cong \angle 7$



STATEMENTS	REASONS
1. $\angle 5$ and $\angle 7$ are vertical angles.	1. Given

USE A DIAGRAM
You can use information labeled in a diagram in your proof.

Exit Ticket

What is the relationship between vertical angles, between two angles that are supplementary to the same angle, and between two angles that are complementary?