

NAME \_\_\_\_\_

Module 8 Points, Lines, Angles, and Triangles  
 Lesson 3 Angle Relationships and Parallel Lines

### Lesson Objective

- Recognize the pairs of angles formed and the relationship between the angles including two intersecting lines and parallel lines cut by a transversal (vertical, supplementary, complementary, corresponding, alternate interior, alternate exterior angles, and linear pair).

### Subtopic 1 Angle Relationships

Complementary Angles

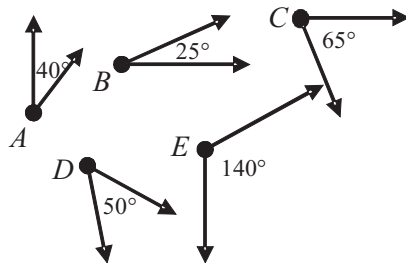
**Two** angles whose measures have a sum of  **$90^\circ$**

Supplementary Angles

**Two** angles whose measures have a sum of  **$180^\circ$**

Two angles that form a **straight angle** are supplementary.

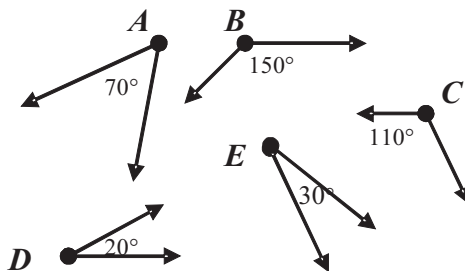
- 1** Name each pair of complementary angles.



$\angle A$  and  $\angle D$

$\angle B$  and  $\angle C$

- 2** Name each pair of supplementary angles.



$\angle A$  and  $\angle C$

$\angle B$  and  $\angle E$

## Subtopic 2 Intersecting Lines and Transversals

### Intersecting Lines

Two or more lines that share a **common** point

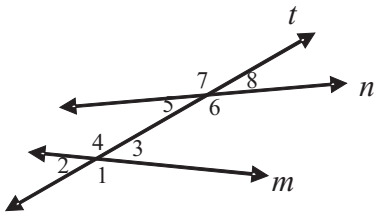
### Vertical Angles

- Two angles formed by **intersecting** lines
- Do not have any common sides
- Have a **common vertex**

Vertical angles are **congruent**.

A **transversal** is a line that intersects two coplanar lines at different points.

- 3** Lines  $m$  and  $n$  are intersected by transversal  $t$ . Name each special angle pair.



$\angle 2$  and  $\angle 8$  **Alternate exterior**

$\angle 1$  and  $\angle 6$  **Corresponding**

$\angle 3$  and  $\angle 5$  **Alternate interior**

## Subtopic 3 Parallel Lines and Transversals

If two parallel lines are cut by a transversal, the **corresponding angles** are congruent.

If two **parallel** lines are cut by a transversal, the alternate exterior angles are **congruent**.

If two parallel lines are cut by a transversal, the **alternate interior** angles are congruent.

- 4** Lines  $a$  and  $b$  are parallel.  
Find  $m\angle 1$ ,  $m\angle 8$ , and  $m\angle 7$ .

$$m\angle 1 = 125^\circ$$

$$m\angle 8 = 125^\circ$$

$$m\angle 7 = 55^\circ$$

