**Activity 2.5.5 Proving Angle Relationships**

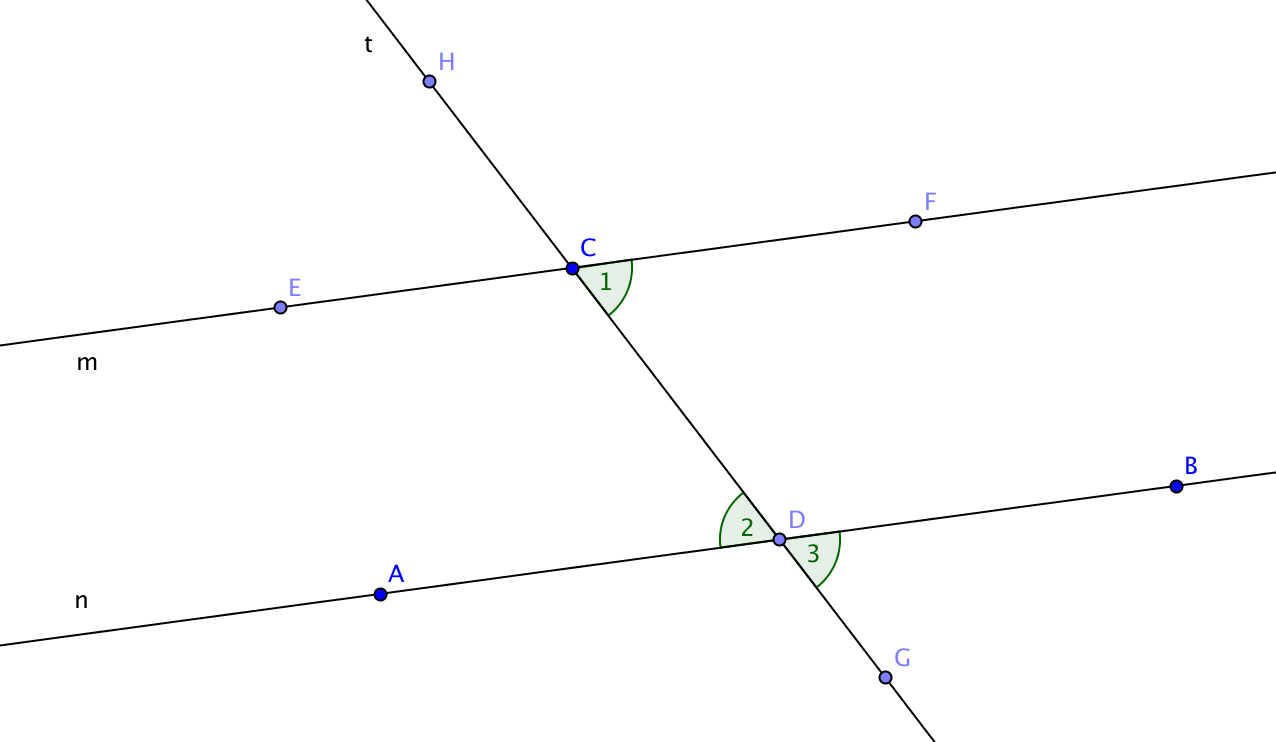
In these proofs you may use these postulates and theorems:

**Parallel Lines Corresponding Angles Theorem   
 (Parallel lines 🡪 Corresponding Angles Congruent)**

**Vertical Angles Theorem**

**Linear Pair Postulate**

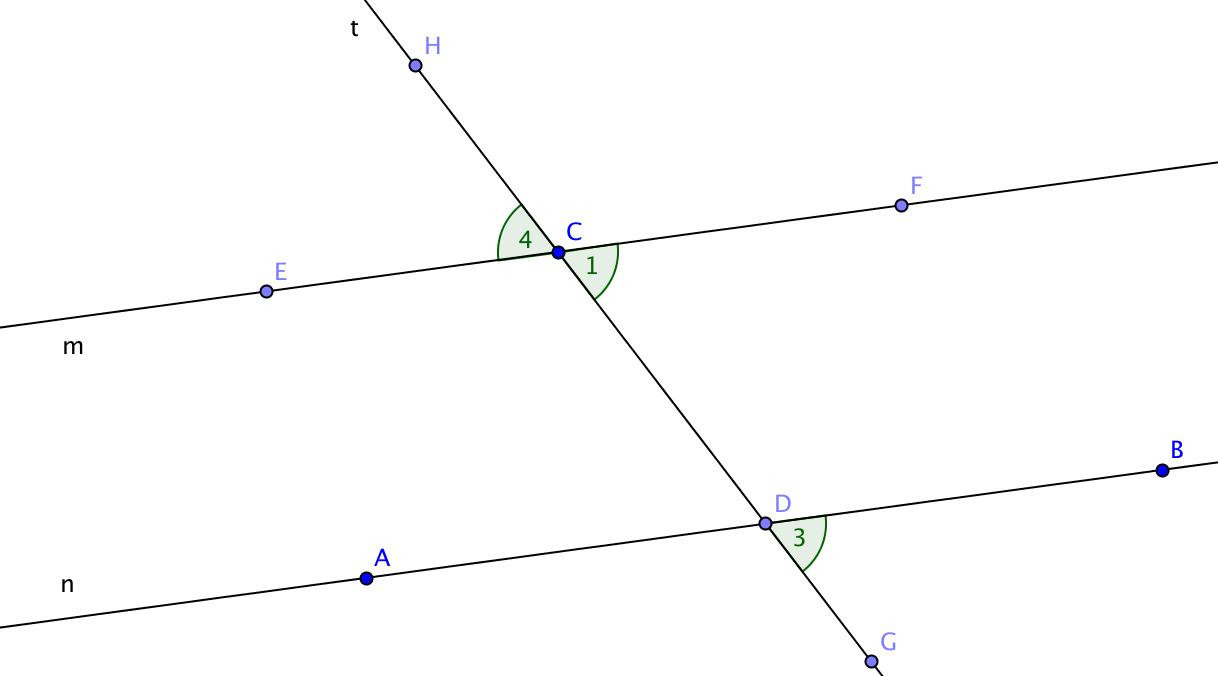
**Transitive property**

**Substitution property**

1. In the figure at the right:
2. and are a pair of \_\_\_\_\_\_\_\_\_\_\_\_\_ angles
3. and are a pair of \_\_\_\_\_\_\_\_\_\_\_\_\_ angles
4. Given: *m* || *n*

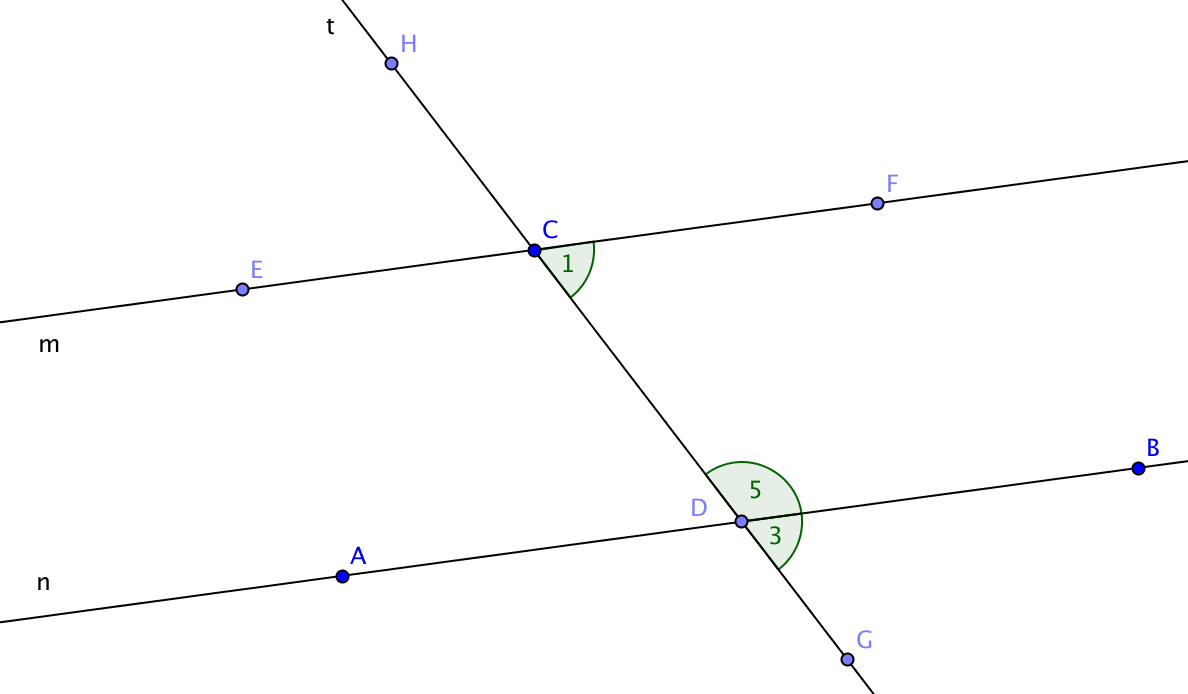
Prove: m = m

d. State the results of this proof as a theorem: If two parallel lines are intersected by a transversal, then pairs of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

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3. In the figure at the right

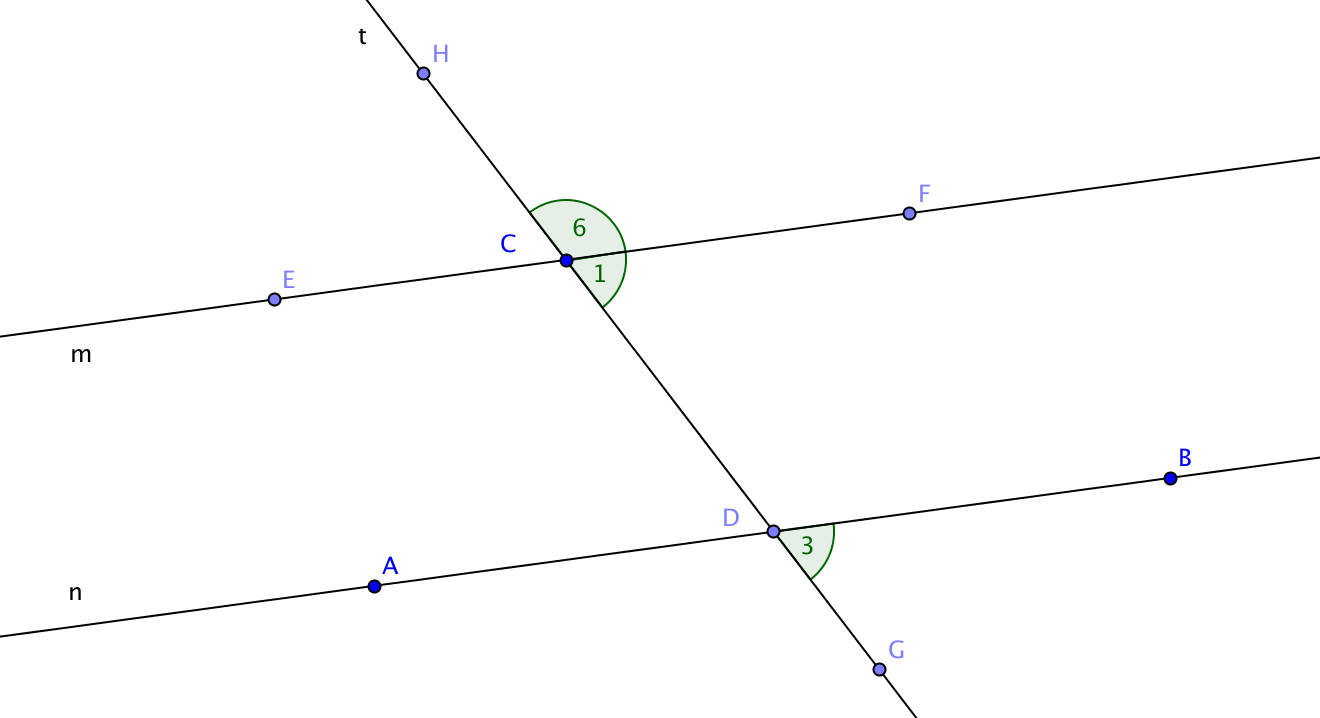
a. and are a \_\_\_\_\_\_\_\_\_\_\_ pair of angles.

b. and are a pair of \_\_\_\_\_\_\_\_\_\_ angles.

c. Given: *m* || *n*

Prove: m + m = 180°

1. State the results of this proof as a theorem: If two parallel lines are intersected by a transversal, then pairs of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4. In the figure at the right

a. and are a \_\_\_\_\_\_\_\_\_\_\_ pair of angles.

b. and are a pair of \_\_\_\_\_\_\_\_\_\_ angles.

c. Given: *m* || *n*

Prove: m + m = 180°

d. State the results of this proof as a theorem: If two parallel lines are intersected by a transversal, then pairs of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.