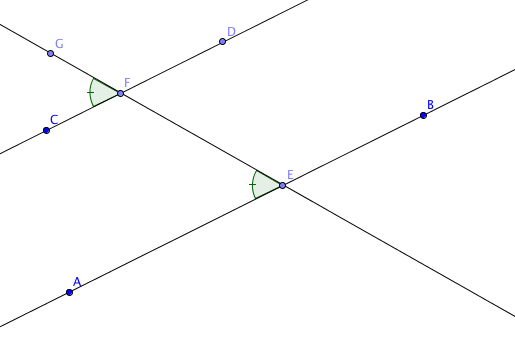
**Activity 3.2.2 Parallel Lines Corresponding Angles Converse**

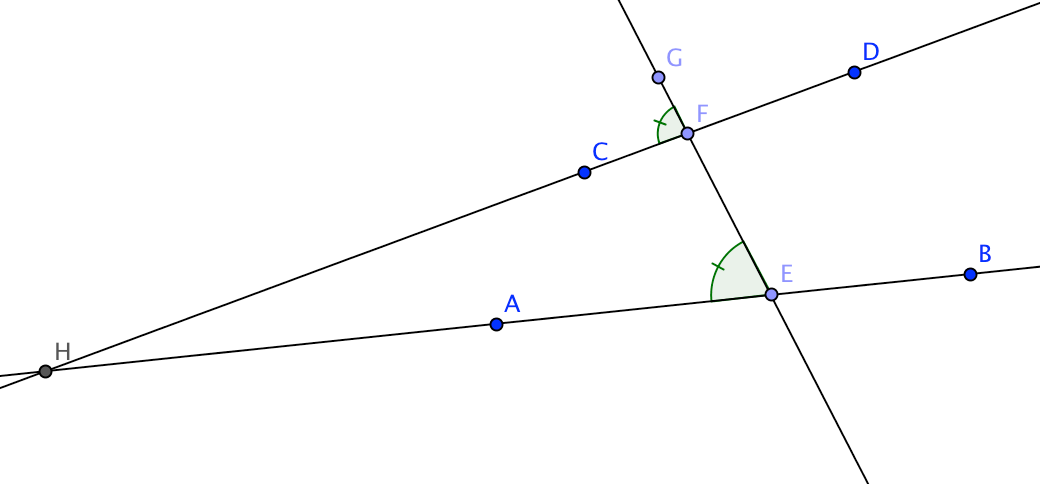
1. Prove the **Parallel Lines Corresponding Angles Converse:** If two lines are cut by a transversal and a pair of corresponding angles are congruent, then the lines are parallel. Fill in the blanks.

Given: Transversal intersects lines and at points *E* and *F*.

m *CFG* = m *AEF*.

Prove: ||

Proof:

 and either intersect or they are parallel.

Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Suppose and intersect at a point we will call “*H.*”

Then *E*, *F*, and *H* are the vertices of a triangle.

In ∆*EFH*, *HEF* is an\_\_\_\_\_\_\_\_\_\_\_\_\_ angle. (Note: *HEF* is another name for *AEF*)  
and *HFG* is an \_\_\_\_\_\_\_\_\_ angle. (Note: *HFG* is another name for *CFG*)

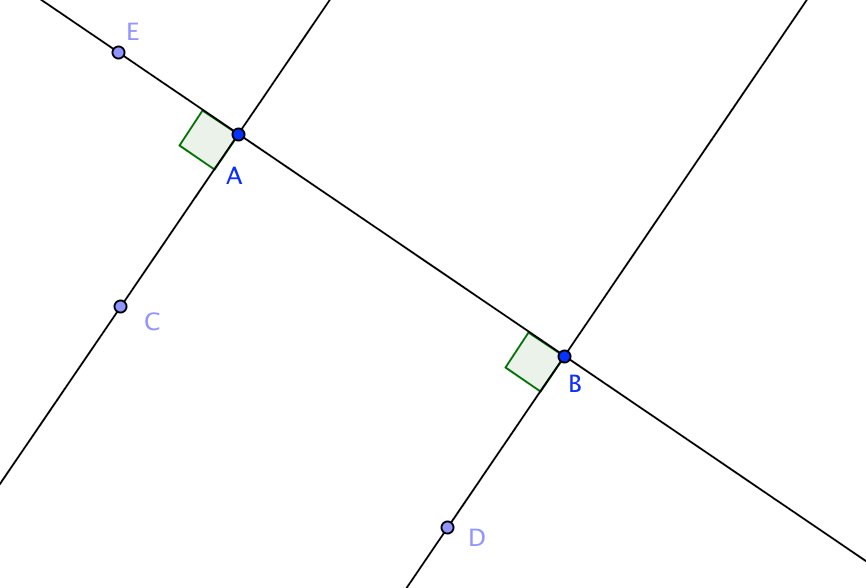
We were given that m *HEF* = m \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Why is this a problem? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What conclusion can you draw? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Prove: If two lines are perpendicular to the same line, then they are parallel.

Complete this two-column proof.



Given:

is perpendicular to

is perpendicular to

Prove:

is parallel to

Proof:

Statement Reason

1. is perpendicular to 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. m *CAE* = 90° 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. is perpendicular to 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. m *DBA* = 90° 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. m *CAE* = m \_\_\_\_\_\_\_\_\_ 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_