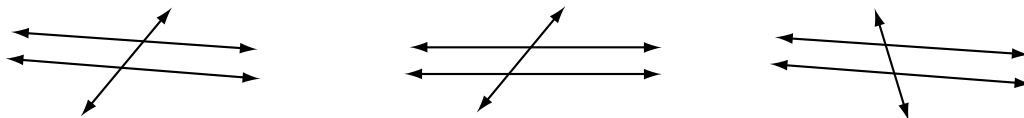


## Exploring Angles Formed by Parallel Lines and a Transversal



When parallel lines are intersected by a third line, called a *transversal*, there are certain relationships among the angles formed. Use Sketchpad to explore these relationships.

1. Open the sketch Parallel (Mac) or Parallel.gsp (Windows).
2. Find  $\angle\text{HEX}$  and  $\angle\text{EOY}$ . They are a pair of *corresponding angles*. How do their measures compare? \_\_\_\_\_
3. For each angle given below, list its corresponding angle and tell how the measures compare.
  - a.  $\angle\text{HEM}$  \_\_\_\_\_
  - b.  $\angle\text{MEO}$  \_\_\_\_\_
  - c.  $\angle\text{XEO}$  \_\_\_\_\_
4. Drag point **N** slowly and notice the measures of each pair of corresponding angles. How do their measures always compare? \_\_\_\_\_  
\_\_\_\_\_

Complete the following statement: If two parallel lines are cut by a transversal, then the corresponding angles are \_\_\_\_\_

5. Find  $\angle\text{MEO}$  and  $\angle\text{EOY}$ . They are a pair of *alternate interior angles*. How do their measures compare? \_\_\_\_\_
6. Name the other pair of alternate interior angles in the sketch: \_\_\_\_\_ and \_\_\_\_\_. How do their measures compare? \_\_\_\_\_  
\_\_\_\_\_

Exploring Angles Formed by Parallel Lines and a Transversal (continued)

7. Drag point **N** slowly and notice the measures of both pairs of alternate interior angles. How do their measures compare? \_\_\_\_\_  
Complete the following statement: If two parallel lines are cut by a transversal, then the alternate interior angles are \_\_\_\_\_
8. Find  $\angle\text{HEM}$  and  $\angle\text{YON}$ . They are a pair of alternate exterior angles. How do their measures compare? \_\_\_\_\_
9. Name the other pair of alternate exterior angles in the sketch:  
\_\_\_\_\_ and \_\_\_\_\_. How do their measures compare?  
\_\_\_\_\_
10. Drag point **N** slowly and notice the measures of both pairs of alternate exterior angles. How do their measures always compare? \_\_\_\_\_  
\_\_\_\_\_
- Complete the following statement: If two parallel lines are cut by a transversal, then the alternate exterior angles are \_\_\_\_\_  
\_\_\_\_\_.