When you work with parallel and perpendicular lines cut by a transversal, remember these words:

- **transversal**: a line that crosses other lines at different points
- **parallel lines**: lines in the same plane that never meet

1. **Alternate interior angles**: two angles on opposite sides of a transversal, both between two lines. Pairs of alternate interior angles: \( \angle 2 \) and \( \angle 7 \); \( \angle 3 \) and \( \angle 6 \).

2. **Corresponding angles**: two nonadjacent angles on the same side of a transversal, one between two lines and one outside the lines. Pairs of corresponding angles: \( \angle 1 \) and \( \angle 3 \); \( \angle 2 \) and \( \angle 4 \); \( \angle 5 \) and \( \angle 6 \).

3. **Alternate exterior angles**: two nonadjacent angles on opposite sides of a transversal, both outside two lines. Alternate exterior angles: \( \angle 1 \) and \( \angle 8 \); \( \angle 4 \) and \( \angle 7 \).

When parallel lines are cut by a transversal, pairs of alternate interior angles, corresponding angles, and alternate exterior angles are congruent. Assume lines \( l \) and \( m \) are parallel in the figure above, and \( \angle 1 \) in the figure measures 112°. What is the measure of \( \angle 3 \)?

**Step 1** Find the relationship. \( \angle 1 \) and \( \angle 3 \) are corresponding angles.

**Step 2** Find the measure.

- Corresponding angles are congruent, so \( \angle 1 \equiv \angle 3 \).
- The measures of \( \angle 1 \) and \( \angle 3 \) are ________.
  \[ m\angle 1 = 112^\circ, \text{ so } m\angle 3 = \_\_\_\_\_\_. \]

So, the measure of \( \angle 3 \) is ________°.
In the figure below, lines \( r \) and \( s \) are parallel. Use the figure for questions 1–9.

Complete the following.

1. \( \angle 1 \) and ______ are alternate exterior angles.

2. \( \angle 1 \) and ______ are corresponding angles.

3. \( \angle 3 \) and ______ are alternate interior angles.

Write true or false for each.

4. \( \angle 2 \) and \( \angle 6 \) are congruent. ______

5. \( \angle 4 \) and \( \angle 6 \) are congruent. ______

6. \( \angle 4 \) and \( \angle 5 \) are congruent. ______

7. \( \angle 7 \) and \( \angle 1 \) are congruent. ______

Solve.

8. If the measure of \( \angle 2 \) is 59°, then what is the measure of \( \angle 7 \)?

   ______

9. If the measure of \( \angle 6 \) is 60°, then what is the measure of \( \angle 3 \)?

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