

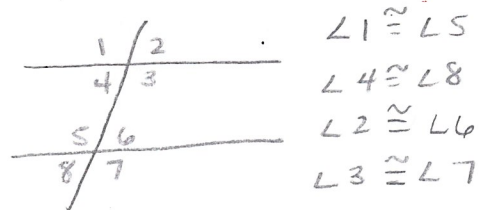
Name: Key Date: _____

Lines and Transversals

- Two lines are parallel if they are coplanar and do not intersect.
- Lines that do not intersect and are not coplanar are called skew.
- Perpendicular are two lines that intersect at a right angle.
- A transversal is a line that intersects two or more coplanar lines at different points.

Corresponding Angles Postulate:

- If two parallel lines are cut by a transversal, then the pairs of corresponding angles are congruent.



Alternate Interior Angles Theorem:

- If two parallel lines are cut by a transversal, then the pairs of alternate interior angles are congruent.

$$\angle 4 \cong \angle 6$$

$$\angle 3 \cong \angle 5$$

Consecutive Interior/Exterior Angles Theorem: (Same Side Interior/Exterior Angles)

- If two parallel lines are cut by a transversal, then the pairs of consecutive interior angles are supplementary.

<u>Cons. Int. L's</u>	<u>Cons. Ext. L's</u>
$\angle 4 + \angle 5 = 180$	$\angle 1 + \angle 8 = 180$
$\angle 3 + \angle 6 = 180$	$\angle 2 + \angle 7 = 180$

Alternate Exterior Angles Theorem:

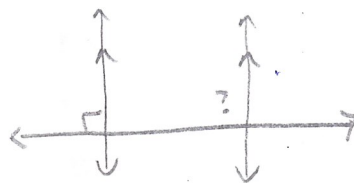
- If two parallel lines are cut by a transversal, then the pairs of alternate exterior angles are congruent.

$$\angle 1 \cong \angle 7$$

$$\angle 2 \cong \angle 8$$

Perpendicular Transversal Theorem:

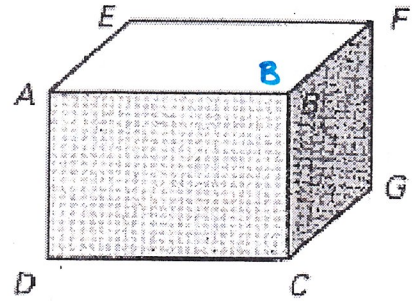
- If a transversal is perpendicular to one of the two parallel lines, then it is perpendicular to the other.



Think of each segment in the diagram as part of a line.

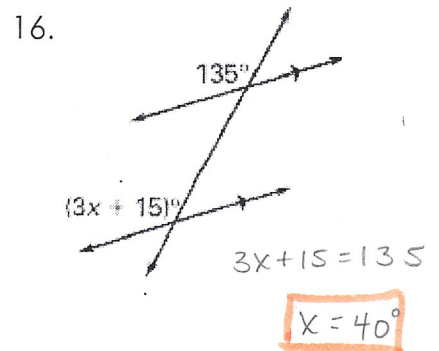
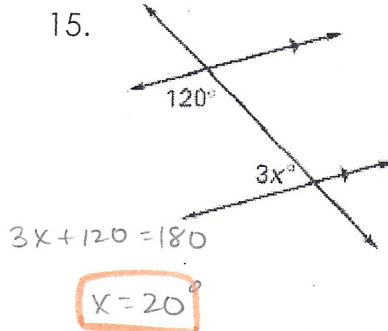
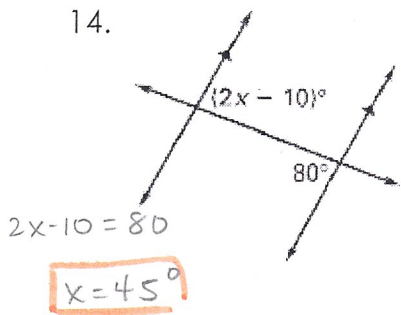
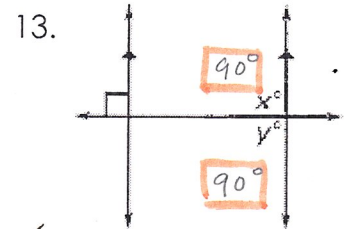
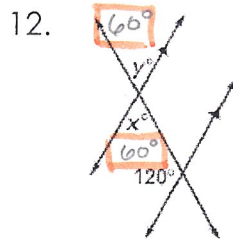
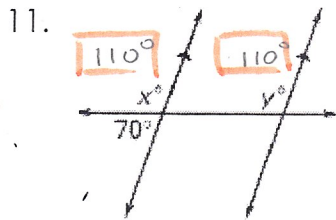
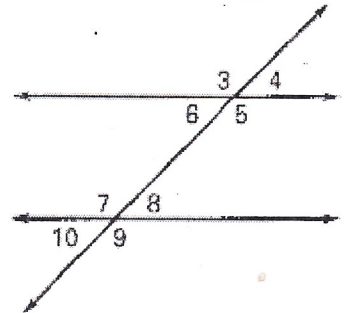
Identify the segments as parallel, skew, or perpendicular.

1. AB and DC parallel
2. AB and BC ⊥
3. BF and FG ⊥
4. AB and FG skew

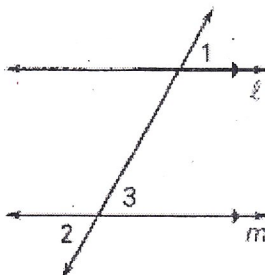


Identify the angles as corresponding, alternate interior, alternate exterior, or consecutive interior.

5. $\angle 3$ and $\angle 7$ corr. \angle 's
6. $\angle 4$ and $\angle 10$ alt. ext. \angle 's
7. $\angle 5$ and $\angle 8$ cons. int. \angle 's
8. $\angle 8$ and $\angle 6$ alt. int. \angle 's
9. $\angle 9$ and $\angle 5$ corr. \angle 's
10. $\angle 5$ and $\angle 7$ alt. int. \angle 's



17. Given: $l \parallel m$
Prove: $\angle 1 \cong \angle 2$



- | STATEMENT | REASON |
|------------------------------|------------------------------|
| 1. $l \parallel m$ | 1. Given |
| 2. $\angle 1 \cong \angle 3$ | 2. Corr. \angle 's \cong |
| 3. $\angle 3 \cong \angle 2$ | 3. Vert. \angle 's \cong |
| 4. $\angle 1 \cong \angle 2$ | 4. Subst. |