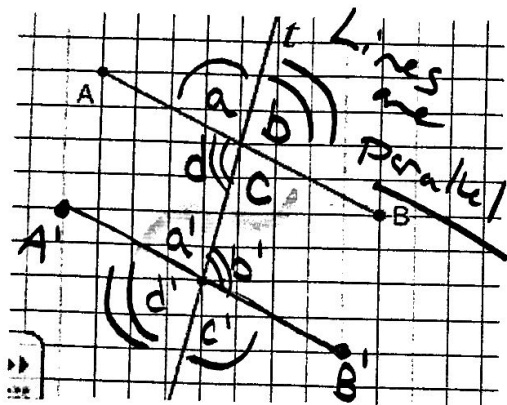


Lesson 9



1. Trace the intersection of the lines onto patty paper, and label the angles a, b, c, and d. Rotate the patty paper 180° around the intersection point. List which pairs of angles you think are congruent:

$$\angle c \cong \angle a \quad \angle b \cong \angle d$$

These angle pairs are called:

Vertical Angles - angle across from each other

2. Slide the line segment AB down the line t until it hits the given point. Draw line segment A'B'. And label the translated angles a', b', c', and d'.

- a. Find the slope of AB $-\frac{1}{2}$ Find the slope of A'B' $-\frac{1}{2}$
 b. What do you notice about these slopes? are equal, making lines parallel
 c. Translation is a rigid motion transformation, so the pre-image and image angles are congruent. List the angle pairs that are congruent.

$$\angle a \cong \angle a' \quad \angle b \cong \angle b' \quad \angle c \cong \angle c' \quad \angle d \cong \angle d'$$

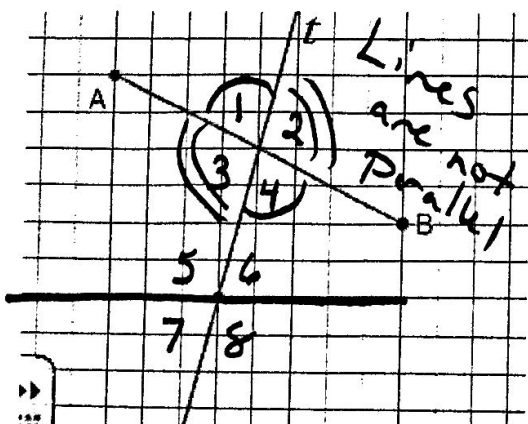
These angle pairs are called: Corresponding Angles - slid down line

3. If you translate angles a, b, c, and d, then rotate them 180° about the given point, what angles are congruent?

$$\angle a \cong \angle c' \quad \angle b \cong \angle d' \quad \angle c \cong \angle a' \quad \angle d \cong \angle b'$$

The angles above or below the line segments are called exterior. The angles between the line segments are called interior. The line t that you slid down is called a transversal.

4. Pick two angles between AB and A'B' that are on the same side of the transversal. These are called same-side angles. Are the two angles congruent? No
 If not, what is the relationship between them? Supplementary (add to 180°)



Draw a line through the given point that is NOT parallel to AB. Label the 8 angles 1-8. Use tracing paper to see if any are congruent to each other.

$$\angle 1 \cong \angle 4 \quad \angle 2 \cong \angle 3$$

Conclusion:

Vertical angles are \cong in both pictures
 Sliding only creates \cong angles if lines are parallel.