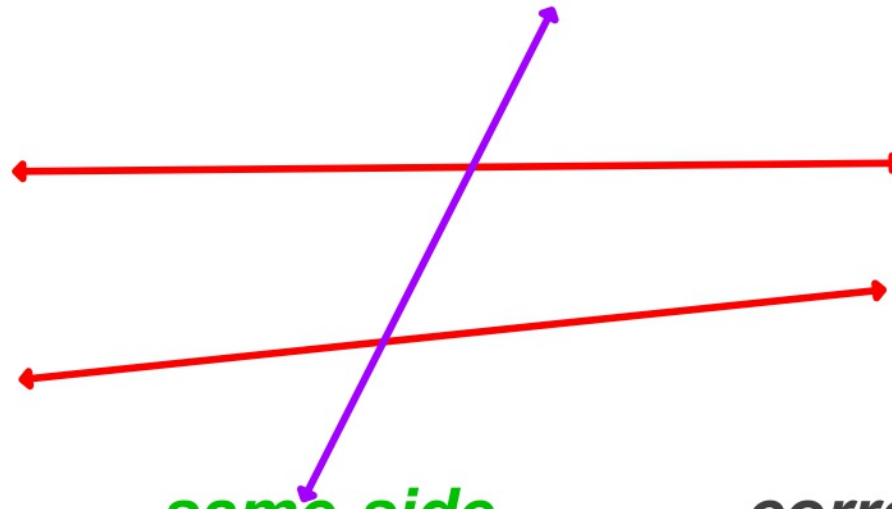


3-1 Properties of Parallel Lines

transversal - a line that intersects 2 coplanar lines at two distinct points



***alternate
interior
angles***

***alternate
exterior
angles***

***same-side
interior
angles***

***same-side
exterior
angles***

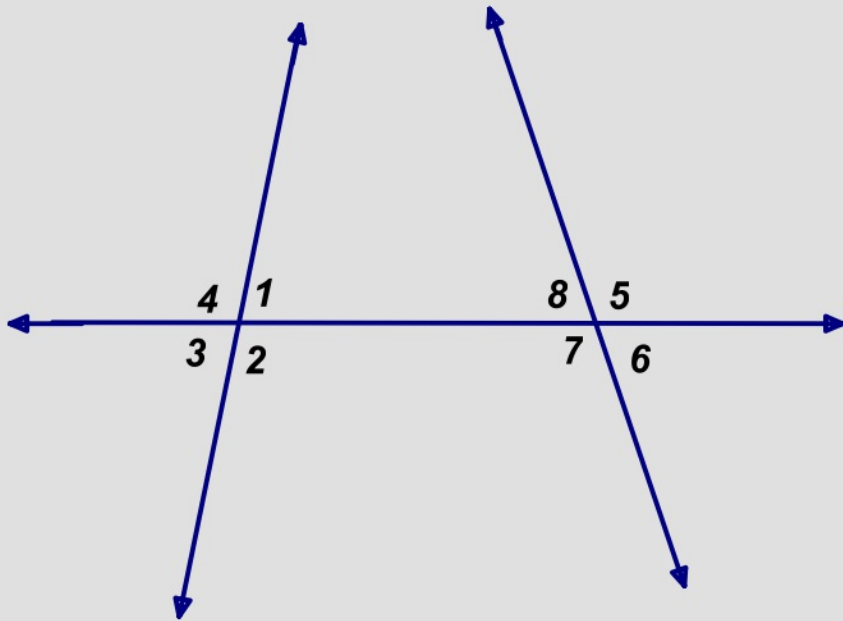
***corresponding
angles***

Example 1:

Use the diagram to identify which angle forms a pair of

same-side interior angles with $\angle 1$

corresponding angles with $\angle 1$

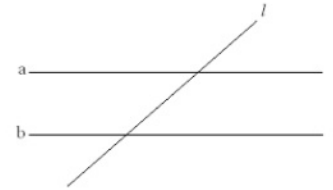


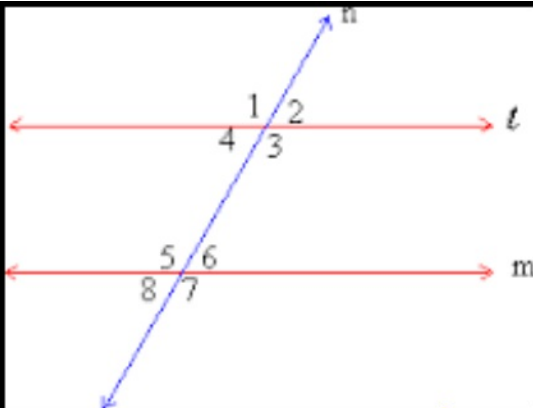
***Classify a pair of
alternate interior angles***

Patty Paper Construction

Construction proof of the types of angles formed by parallel lines and their relationship.

- Draw a pair of parallel lines on a piece of patty paper.
- Fold a line that intersects the two parallel lines. Draw in the line.
- Label the angles 1 - 8
- Choose a pair of corresponding angles. Copy the 2nd angle on the patty paper and compare it to the 1st corresponding angle.
- Using this method compare the alternate interior angles, alternate exterior angles, same-side interior angles, same-side exterior angles.





If two parallel lines are cut by a transversal, then

___ corresponding angles are _____

___ alternate interior angles are _____

___ same-side interior angles are _____

___ alternate exterior angles are _____

___ same-side exterior angles are _____

Postulate 3-1: Corresponding Angles Postulate

If a transversal intersects two parallel lines, then corresponding angles are congruent.

Theorem 3-1: Alternate Interior Angles Theorem

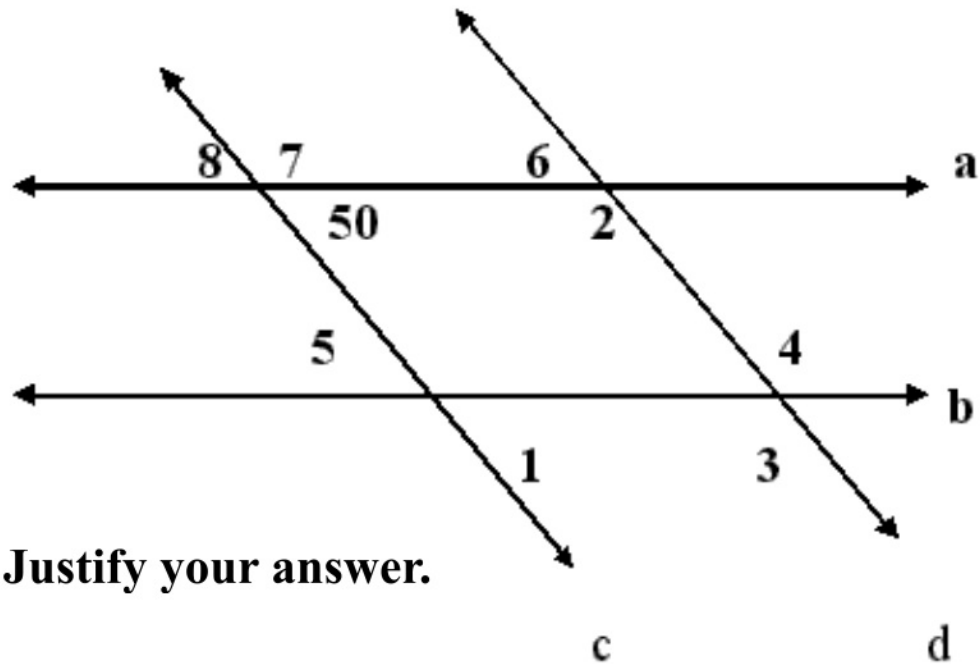
If a transversal intersects two parallel lines, then alternate interior angles are congruent.

Theorem 3-2: Same-Side Interior Angles Theorem

If a transversal intersects two parallel lines, then same-side interior angles are supplementary.

Examples:

Use the diagram at the right.
Assume lines a and b and lines
c and d are Parallel.

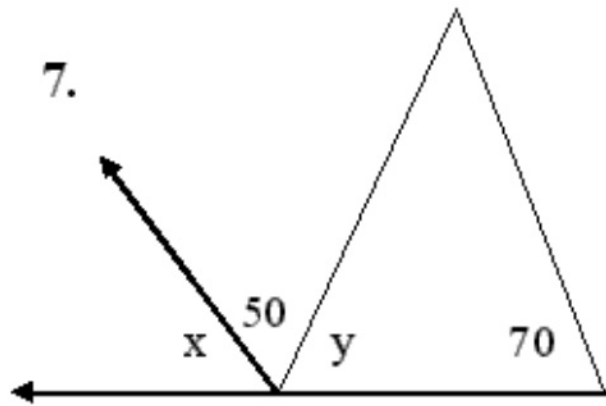


Find the measure of each angle. Justify your answer.

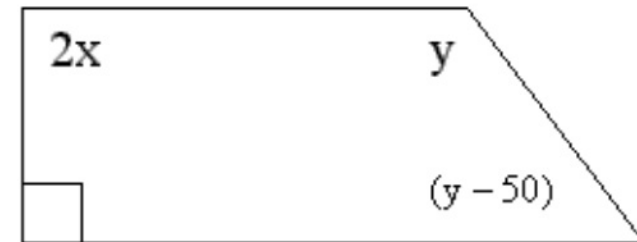
1. $\angle 3$
2. $\angle 6$
3. $\angle 4$
4. $\angle 7$
5. $\angle 5$
6. $\angle 8$

Goal: To identify angles formed by two lines and a transversal and the relationship between the angles formed from two lines and a transversal.

Find the missing measures in the diagrams.



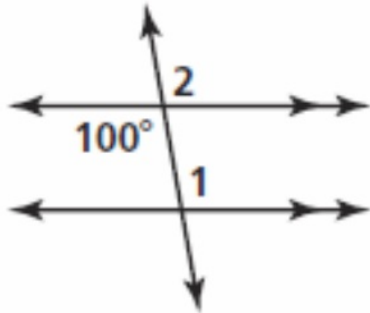
8.



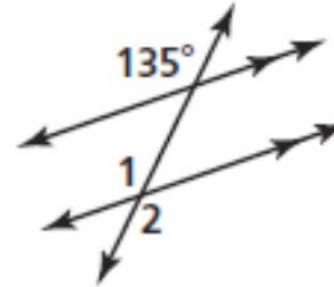
Goal: To identify angles formed by two lines and a transversal and the relationship between the angles formed from two lines and a transversal.

Find $m\angle 1$ and then $m\angle 2$. Justify each answer.

9. _____

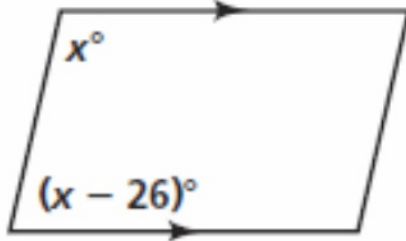


10. _____



Algebra Find the value of x . Then find the measure of each angle.

11. _____



12. _____

