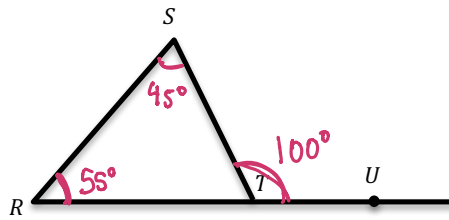


**LEARNING OBJECTIVE:** We will apply everything we know to find missing angle measurements. . (G8M2L11)

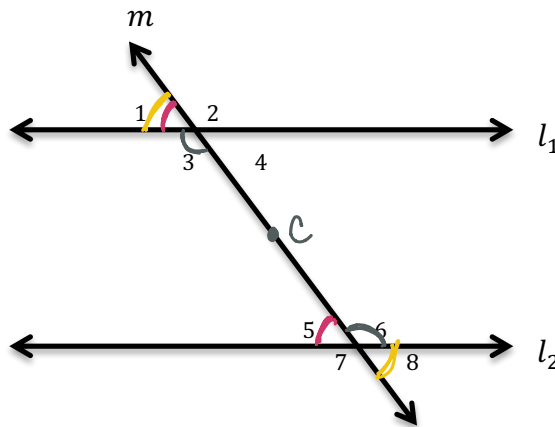
**CONCEPT DEVELOPMENT:**

We know many things about angle measurements:

1. A straight line is 180 degrees
2. The interior angles of a triangle add up to 180 degrees.
3. the exterior angle of a triangle is equal to the sum of the two remote interior angles of the triangle.



4. When two lines intersect, the **vertical angles** are congruent.
5. When you have two parallel lines cut by a transversal the following are true:
  - a. **Corresponding angles** are congruent. ← Translation  $\sphericalangle 1 \cong \sphericalangle 5$
  - b. **Alternate interior angles** are congruent.  $\sphericalangle 3 \cong \sphericalangle 6$  180° Around rot. c.
  - c. **alternate exterior angles** are congruent.  $\sphericalangle 1 \cong \sphericalangle 8$



**GUIDED PRACTICE:**

**Steps for Finding Missing Angle Measures**

1. Look for triangles, straight lines, parallel lines, and other things that can help you find missing angle measures.
2. Use the facts we have learned about triangles and parallel lines to find the missing angle measures.

Diagram 1: Two parallel lines intersected by a transversal. A triangle is formed with angles  $93^\circ$ ,  $42^\circ$ , and  $d$ . The sum of these angles is given as  $93 + 42 + d = 180$ . Other angles are labeled  $f$ ,  $c$ ,  $b$ , and  $e$ .

$a = 93^\circ$   
 $b = 42^\circ$   
 $c = 93^\circ$   
 $d = 45^\circ$   
 $e = 138^\circ$   
 $f = 87^\circ$

Diagram 2: Two parallel lines intersected by a transversal. Angles are labeled  $a$ ,  $b$ ,  $c$ ,  $d$ ,  $e$ , and  $f$ . A  $124^\circ$  angle is also shown.

$a = 47^\circ$   
 $b = 77^\circ$   
 $c = 180 - 124 = 56^\circ$   
 $d =$   
 $e = 47^\circ$   
 $f = 56^\circ$   $\because f$  is Alt. Int. w/  $c$

$$\begin{array}{r} 180 \\ - 56 \\ \hline 124 \\ - 47 \\ \hline 77 \end{array}$$

Diagram 3: Two parallel lines intersected by a transversal. A triangle is formed with angles  $51^\circ$ ,  $58^\circ$ , and  $71^\circ$ . Other angles are labeled  $39^\circ$ ,  $32^\circ$ ,  $148^\circ$ ,  $79^\circ$ ,  $109^\circ$ ,  $71^\circ$ ,  $39^\circ$ , and  $32^\circ$ .

$51 + 58 = 109$   
 $180 - 109 = 71$

1. Extend line?  
 2. Alt. Int.  
 3.  $180 - 148$   
 4.  $39 + 32$   
 71

1. Make 2 Right triangles  
 1. Making 3<sup>rd</sup> Parallel line

Diagram 4: Two parallel lines intersected by a transversal. Angles are labeled  $103^\circ$ ,  $58^\circ$ ,  $19^\circ$ ,  $58^\circ$ ,  $103^\circ$ ,  $77^\circ$ ,  $58^\circ$ , and  $X$ .

$103$   
 $58$   
 $\hline 161$

$180$   
 $- 161$   
 $\hline 19$

$77 - 58 = 19^\circ$

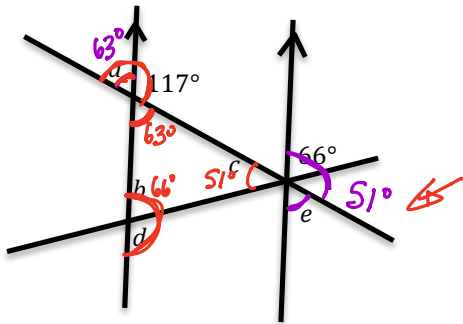
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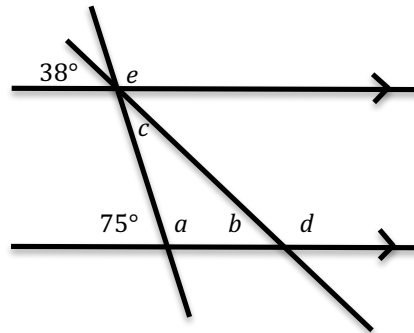
Mr. Rogove

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**INDEPENDENT PRACTICE:**



- $a = 63^\circ$
- $b = 66^\circ$
- $c = 51^\circ$
- $d = 114^\circ$
- $e = 63^\circ$



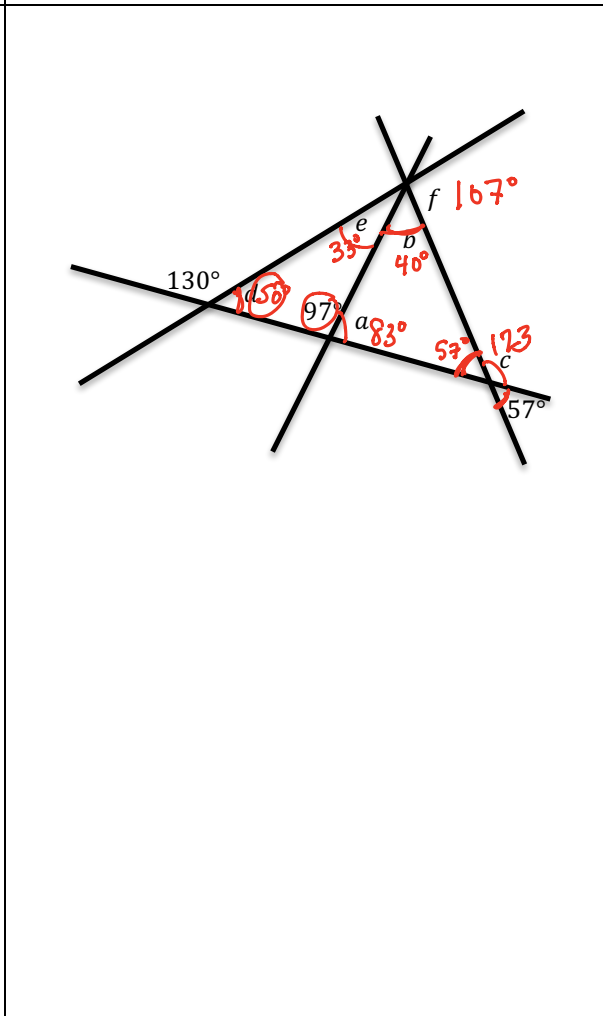
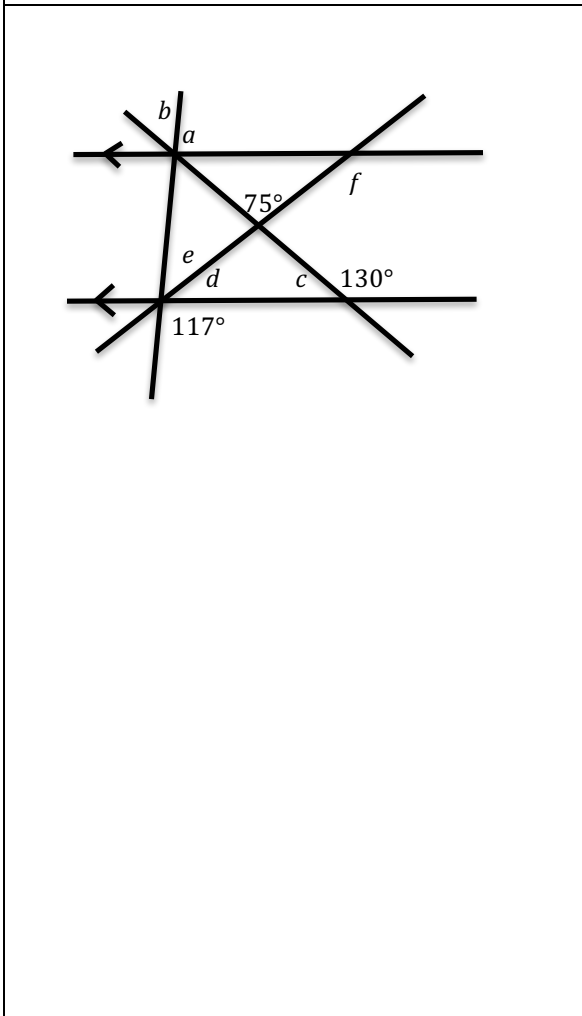
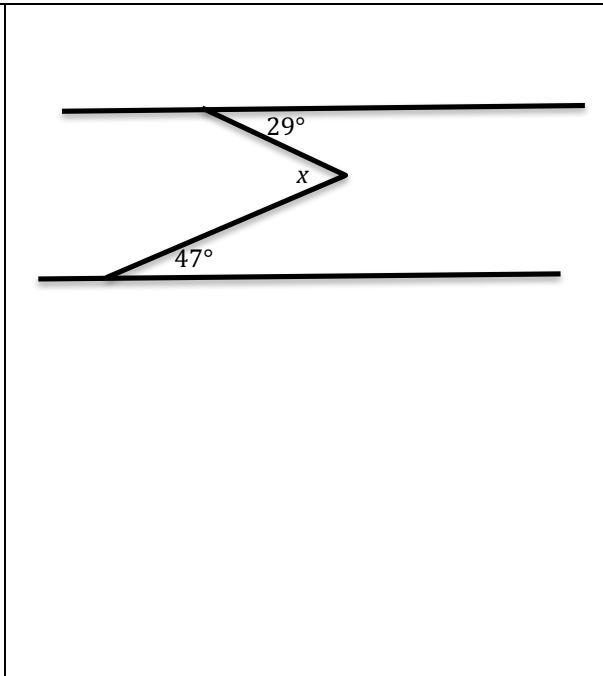
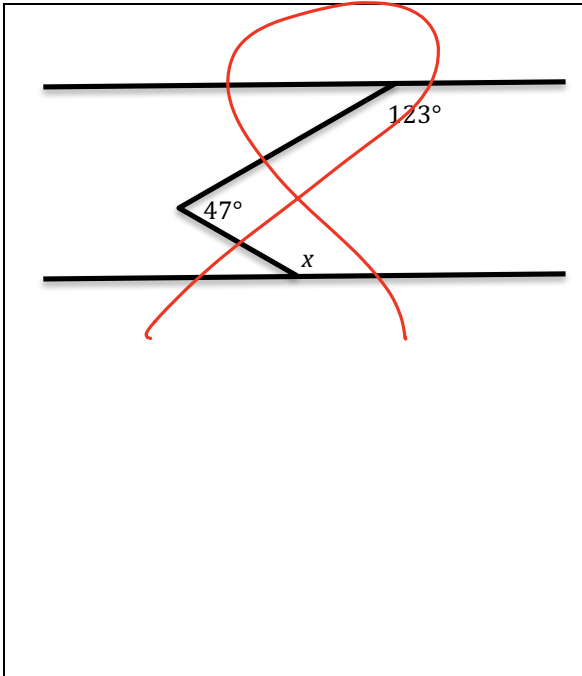
- $a =$
- $b =$
- $c =$
- $d =$
- $e =$
- ~~$f =$~~

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Math 7.1 Period \_\_\_\_\_

Mr. Rogove

Date: \_\_\_\_\_



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Mr. Rogove

Date: \_\_\_\_\_

**ACTIVATING PRIOR KNOWLEDGE:**

Review triangle sum theorem.

**CLOSURE:**

