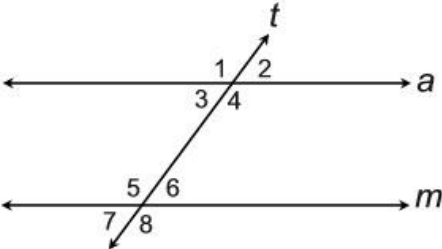Name: _____ Date: _____

UNIT 1B **LESSON 14**

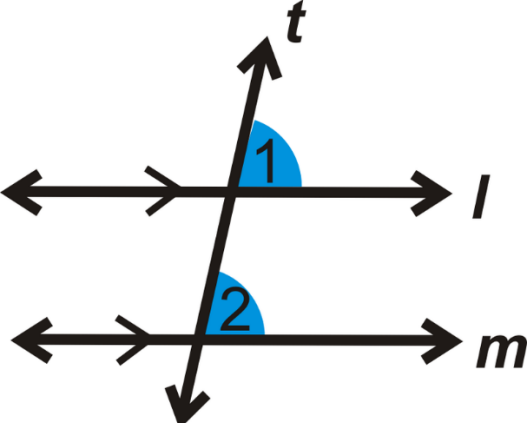### AIM: WHAT IS THE RELATIONSHIP BETWEEN TRANSVERSALS AND PARALLEL LINES?

| WORD	DEFINITION
Parallel Lines	
Angle Congruence	

TOPIC #1: LINES AND TRANSVERALS

- A _____ is a line that crosses two (or more) lines.
- Transversals create _____ angles, four at each intersection.
- _____ angles fall between the two parallel lines
- _____ angles fall outside the two parallel lines.

Given- $a \parallel m$ with transversal t

TOPIC #2: CORRESPONDING ANGLES

- Angles that are in the same location at each intersection are called _____

    _____.

- **LOOK FOR LETTER: _____**

- *Corresponding Angles Postulate*: If parallel lines are cut by a transversal, then corresponding angles are _____.

TOPIC #3: ALTERNATE INTERIOR ANGLES

- Angles that are on opposite sides of the transversal and on the interior of the lines are called

  _____.

- **LOOK FOR LETTER: _____**

- *Alternate Interior Angles Postulate:* If parallel lines are cut by a transversal, then alternate interior angles are

  _____.
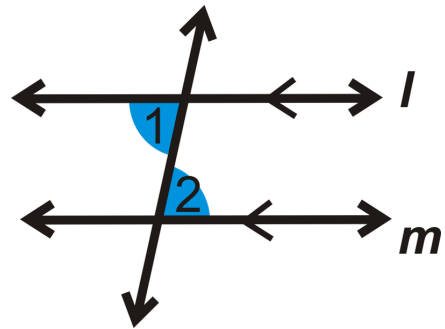
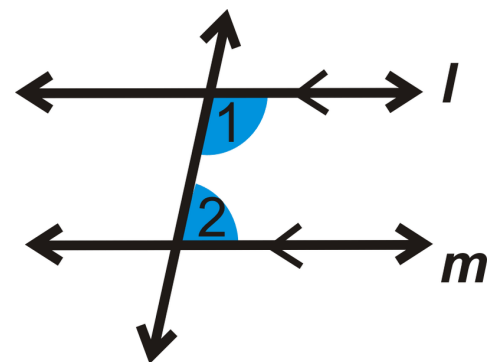## TOPIC #4: ALTERNATE EXTERIOR ANGLES

- Angles that are on opposite sides of the transversal and on the exterior of the lines are called

  _____.

- *Alternate Exterior Angles Theorem:* If parallel lines are cut by a transversal, then alternate exterior angles are

  _____.
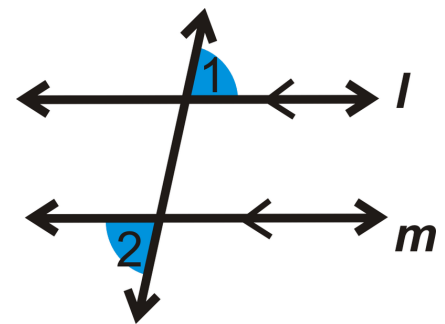
TOPIC #5: SAME SIDE INTERIOR ANGLES

- Angles that are on the same side of the transversal and on the interior of the lines are called

  _____.

- **LOOK FOR LETTER: _____**

- Same side interior angles are _____.

LESSON SUMMARY!

A Transversal is a line that crosses two or more lines.	
Angle Pairs Formed	Relation when lines are parallel
Corresponding	Congruent
Alternate Interior	Congruent
Alternate Exterior	Congruent
Same Side Interior	Supplementary

Practice: For examples #'s 1-4, $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$ and these lines are cut by transversal $\overleftrightarrow{EF}$.
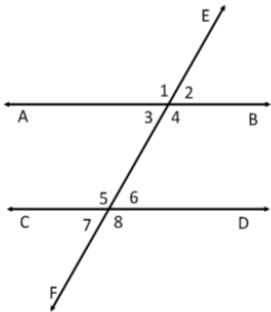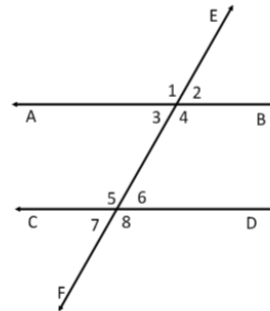
1) If $m\angle 4 = 40°$, what is the measure of $\angle 5$?
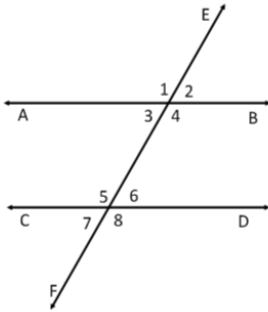
2) If $m\angle 2 = 145°$, what is the measure of $\angle 7$?
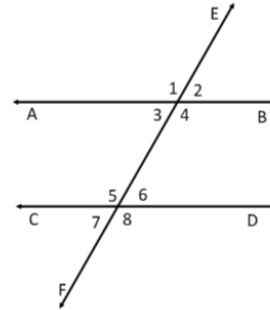
3) If $m\angle 4 = 70°$, what is the measure of $\angle 8$?
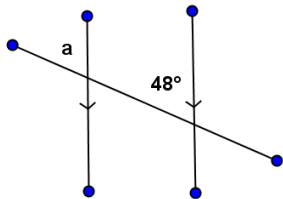
4) If $m\angle 3 = 130°$, what is the $m\angle 5$?

5. In each exercise below, find the unknown (labeled) angles. Give reasons for your solutions.

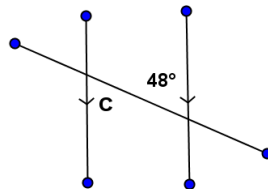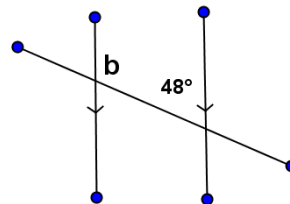a)   b)   c)   d)
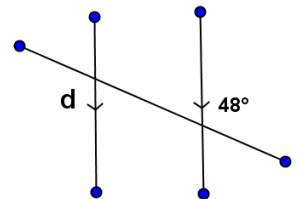
$m\angle a =$ _____ $m\angle c =$ _____ $m\angle b =$ _____ $m\angle d$ _____

Reason: Reason: Reason: Reason:
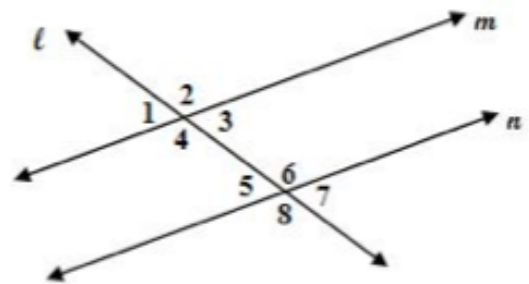
6. If m<6 = 2x + 20, and m<3 = 4x + 10, find the following:

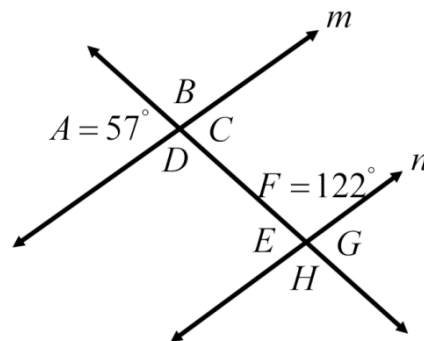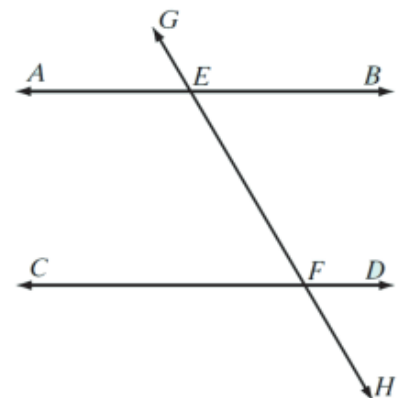   a) $m\angle 1$ b) $m\angle 7$
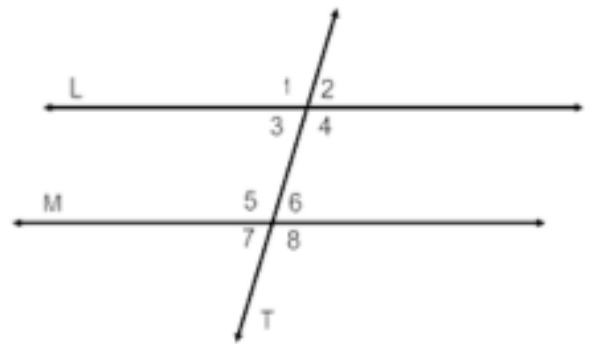
7. If $m\angle 1 = x + 1$ and $m\angle 6 = 2(x + 1)$, what must $m\angle 5$ be so the lines m and n are parallel?

8. Are lines m and n parallel? **Explain** your answer!

9. $\overrightarrow{AB} \parallel \overrightarrow{CD}$ and these lines are cut by transversal $\overrightarrow{GH}$ at points E and F. If

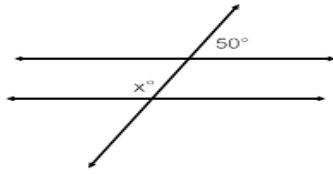 $m\angle CFE = 3y + 20$ and $m\angle AEG = 4y - 10$, find the value of y.
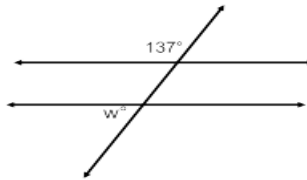
Name: _____   Date: _____
UNIT 1B   **LESSON 14**
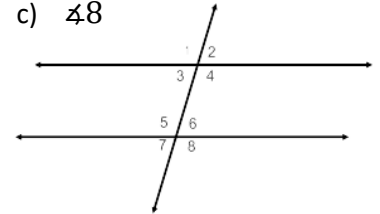<div align="center">**HOMEWORK**</div>

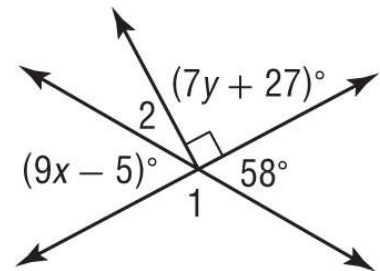| **1)** Solve for *x*	**2)** Solve for *w*	3) If the measure of ∡3 is $25°$, find the following:
50° x°	137° w°	a) ∡2 b) ∡6 c) ∡8

4) Solve for x

m
$(3x-10)°$
$(5x+30)°$ **m ‖ n**
n
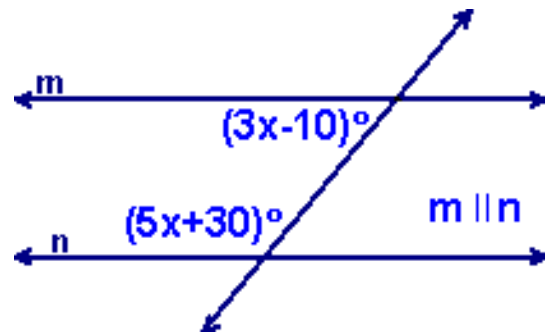
For Exercises 5-8, use the figure at the right. *(HINT: Angles at a point sum to 360 degrees)*

5) Find the value of *x*.   6) Find $m\angle 1$.

$(7y + 27)°$
2
$(9x - 5)°$ 58°
1

7) Find $m\angle 2$.   8) Find the value of *y*.