

### 3.1-3.3 Study Guide

Name: \_\_\_\_\_

Directions: Please complete each section and then check your answers. Then, self-assess your understanding of each target using a 1 to 5 scale, where 1 is Not Good, 3 is Okay..., and 5 is I Got This!!!  
If you are not a 5, please retry other problems from that section and seek out help!

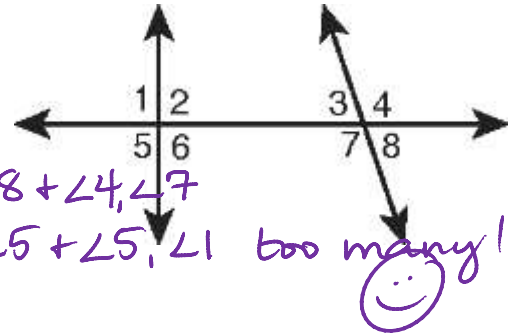
### 3.1 Lines and Angles

Learning Target 3.1: Name a transversal and classify each pair of angles.

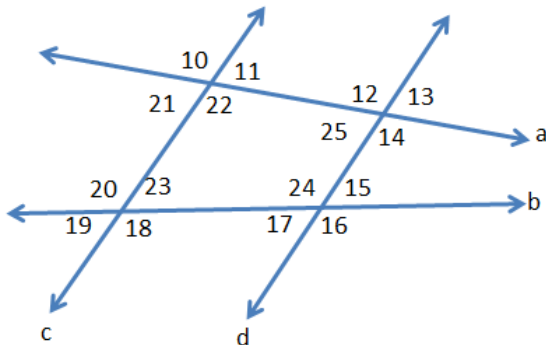
1 2 3 4 5

For # 1- 6, give an example of each type of angle pair:

- 1) Corresponding Angles:  $\angle 1, \angle 3$  &  $\angle 2, \angle 4$  &  $\angle 5, \angle 7$  &  $\angle 6, \angle 8$
- 2) Alternate Interior Angles:  $\angle 2, \angle 7$  &  $\angle 3, \angle 6$
- 3) Same Side Interior Angles:  $\angle 2, \angle 3$  &  $\angle 6, \angle 7$
- 4) Alternate Exterior Angles:  $\angle 1, \angle 8$  &  $\angle 4, \angle 5$
- 5) Vertical Angles:  $\angle 1, \angle 6$  &  $\angle 2, \angle 5$  &  $\angle 3, \angle 8$  &  $\angle 4, \angle 7$
- 6) Linear Pair Angles:  $\angle 1, \angle 2$  &  $\angle 2, \angle 4$  &  $\angle 6, \angle 5$  &  $\angle 5, \angle 1$  too many!



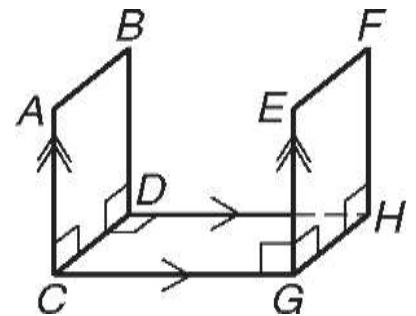
For #7-10, answer the following using the diagram on the right.



- 7) What type of angles are 21 and 23 Alt. int.  $\angle$ 's
- 8) What type of angles are 11 and 18 Same side ext  $\angle$ 's
- 9) What type of angles are 25 and 21 Corr  $\angle$ 's
- 10) What type of angles are 19 and 16 Same side ext  $\angle$ 's

For #11-13 answer the following using the diagram on the right.

- 11) Identify a pair of parallel segments \_\_\_\_\_
- 12) Identify a pair of skew segments \_\_\_\_\_
- 13) Identify a pair of perpendicular segments \_\_\_\_\_



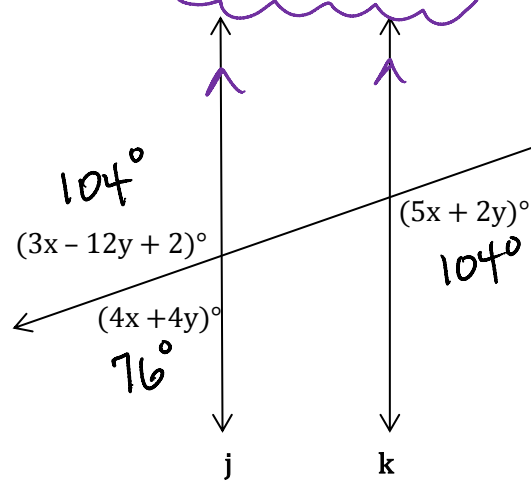
### 3.2 Given Parallel Lines

Learning Target 3.2a: Given two parallel lines, find an angle measure.

1 2 3 4 5

- 14) Given  $j$  is parallel to  $k$ , find...

15) Given line j is parallel to line k, find x and y.



linear pairs

①  $3x - 12y + 2 + 4x + 4y = 180$   
 $7x - 8y = 178$

② Same side ext  
 $4x + 4y + 5x + 2y = 180$   
 $9x + 6y = 180$

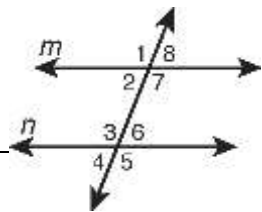
③  $3(7x - 8y) = (178)$   
 $4(9x + 6y) = (180)$

$$\begin{array}{r} 21x - 24y = 534 \\ 36x + 24y = 720 \\ \hline 57x = 1254 \\ x = 22 \end{array}$$

④  $9(22) + 6y = 180$   
 $y = -3$

Learning Target 3.2b: Given two parallel lines, prove angles congruent

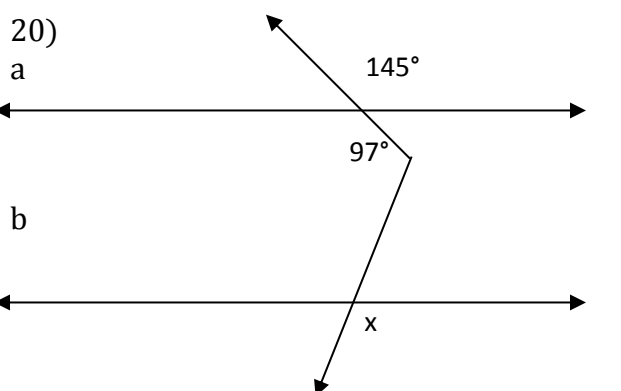
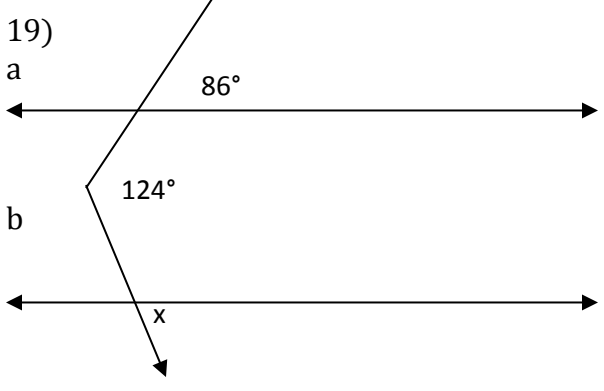
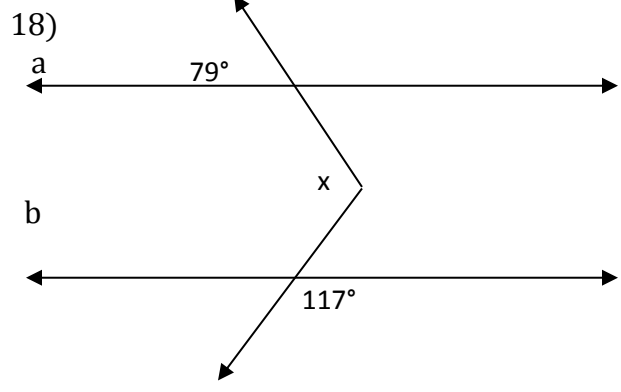
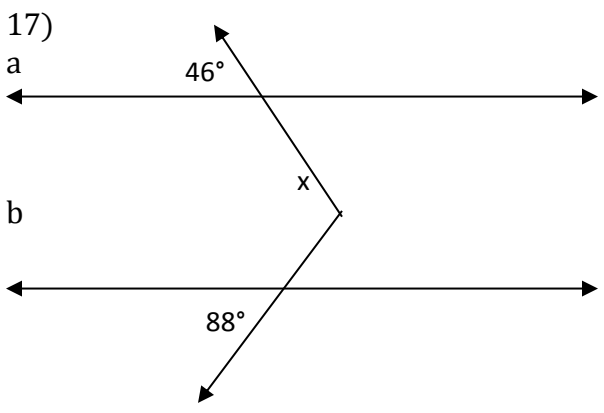
16) Given:  $m \parallel n$   
 Prove:  $\angle 2$  supplementary to  $\angle 3$



Statements	Reasons

Learning Target 3.2c: Find missing angles in "Crook Problems."

In each picture, line a is parallel to line b. Find x.

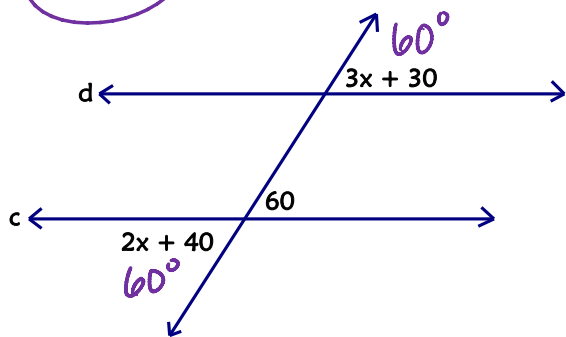


### 3.3 Prove Parallel Lines

Learning Target 3.3a: Prove lines are parallel algebraically.

1 2 3 4 5

21) Is  $c \parallel d$ ? Show all of your work to justify your answer. Explain why or why not.



★ Since we are not sure, we cannot use "5 Key words"..  
Can only use V.A. or Linear Pair

$$2x + 40 = 60$$

$$2x = 20$$

$$x = 10$$

Yes... ① If corr  $\angle$ 's  $\cong$   $\rightarrow$   $\parallel$  lines  
② If alt. ext  $\angle$ 's  $\cong$   $\rightarrow$   $\parallel$  lines.

Learning Target 3.3b: Prove lines are parallel in a two-column proof. 1 2 3 4 5

22) Given:  $\angle 8$  supplementary to  $\angle 3$

Prove:  $m \parallel n$

Statements	Reasons

