**Ch. 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!

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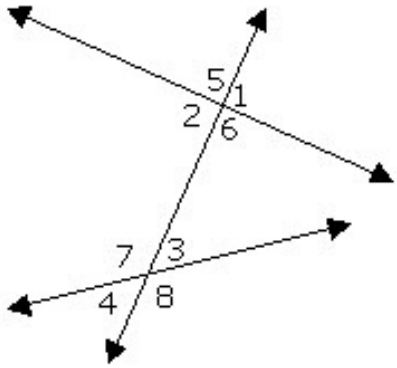
## 3.1 Lines and Angles

Learning Target 3.1: Name a transversal and classify each pair of angles. 1 2 3 4 5

1) Using the diagram below, name one pair of each of the following:




Vertical Angles: _____

Linear Pair Angles: _____

Corresponding Angles: _____

Alternate Interior Angles: _____

Alternate Exterior Angles: _____

Same Side Interior Angles: _____

Same Side Exterior Angles: _____

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## 3.2 Given Parallel Lines

Learning Target 3.2a: Given two parallel lines, find an angle measure. 1 2 3 4 5

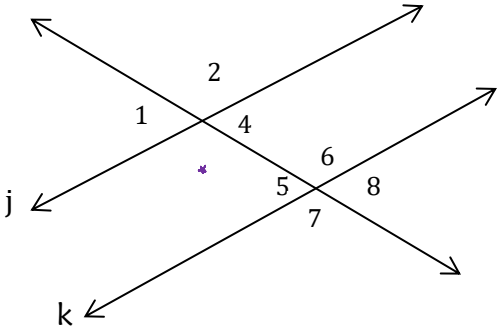
2) Given: $j \parallel k$

$m\angle 1 = 15x + 17y + 6$

$m\angle 2 = -12x + 25y$

$m\angle 8 = 8x + 22y$

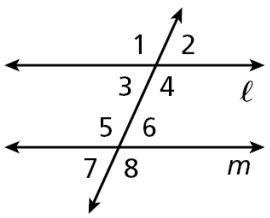
Find: x and y




Learning Target 3.2b: Given two parallel lines, prove angles congruent 1 2 3 4 5

3) Given: $\ell \parallel m$

Prove: $\angle 1$ is supplementary to $\angle 7$

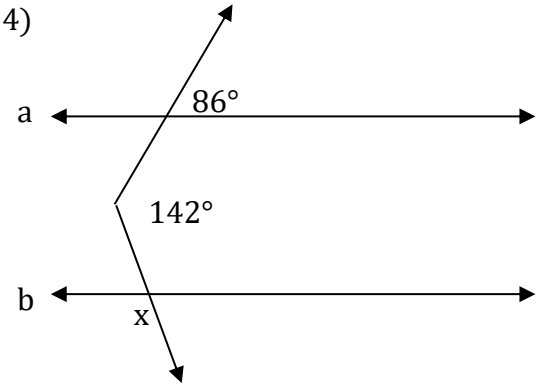



| Statements | Reasons |
|---|---|
| | |

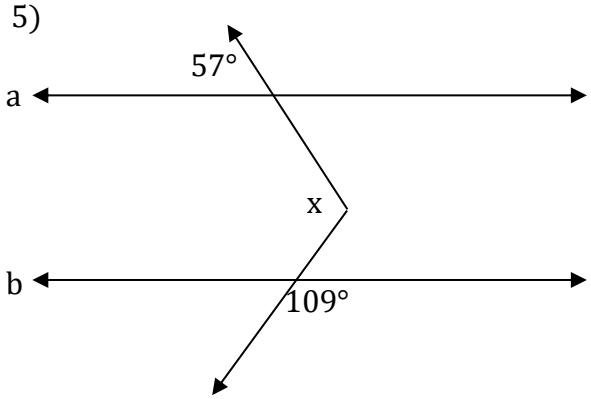
Learning Target 3.2c: Find missing angles in "Crook Problems." 1 2 3 4 5

Line a is parallel to line b. Find the measure of x.

4)




5)

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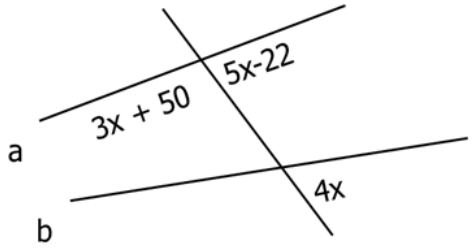
***3.3 Prove Parallel Lines***

Learning Target 3.3a: Prove lines are parallel algebraically. 1 2 3 4 5

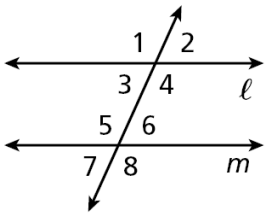
6) Is a || b? Show all of your work to justify your answer.




*Circle:* YES or NO
Explain why or why not?

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

7a) Given: $\angle 1$ is supplementary to $\angle 6$
Prove: $\ell \parallel m$




| Statements | Reasons |
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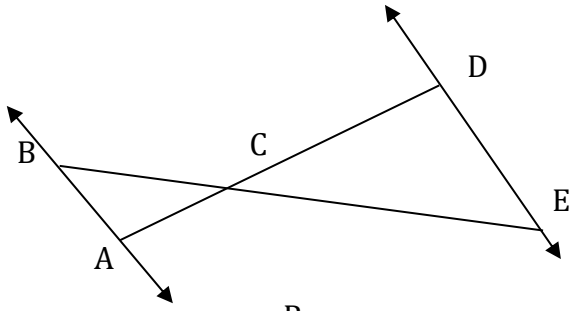
| | |

7b) Given: $\overline{AB} \parallel \overline{ED}$

C is the Midpoint of $\overline{AD}$

Prove: $\overline{AB} \cong \overline{ED}$




| Statements | Reasons |
|---|---|
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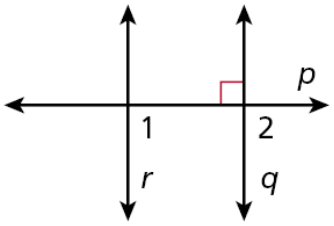
## *3.4 Perpendicular Lines*

Learning Target 3.4a: Use properties of lines and the ⊥ Transversal Thm to find the measure of angles.

1 2 3 4 5

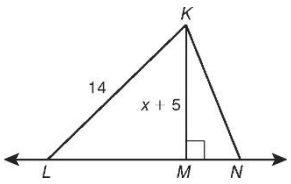
8) Given: $r \parallel q$,
$m\angle 1 = (3x + y)°$,
$m\angle 2 = (2x + 3y - 5)°$
Solve for x and y.




Learning Target 3.4b: Prove lines are perpendicular in a two-column proof. 1 2 3 4 5

9) Which segment is the shortest?

Write an inequality and solve for x.



### 3.5 Slopes of Lines

Learning Target 3.5a: Calculate the slope of the lines given two points 1 2 3 4 5

11) Find the slope given the points (-3, -6) and (12, -1)

12) Find the value of y given the points (2, y) and (12, -4) and slope = 1/2.

Learning Target 3.5b: Use slope to determine if lines are parallel, perpendicular, or neither. 1 2 3 4 5

13) Determine whether $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ are parallel, perpendicular, or neither for A(-4, 5), B(2, 3), C(3, 1), and D(4, 4).

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### 3.6 Lines in the Coordinate Plane

Learning Target 3.6a: Write an equation of a line in slope-intercept form and point slope form.

1 2 3 4 5

14) Write an equation of a line in slope-intercept form that passes through the points (-1,8) and (4, -2).

15) Write an equation of a line in point-slope form that passes through the points (-5, 9) and (0, -6).

Learning Target 3.6b: Write equations of parallel and perpendicular lines. 1 2 3 4 5

16) Write an equation of a line in slope-intercept form that is parallel to the line y=-2x+4 passes through the point (3, 5).

17) Are the lines parallel, perpendicular or neither ?

5x – 4y = 10 and -5y = -4x – 6