

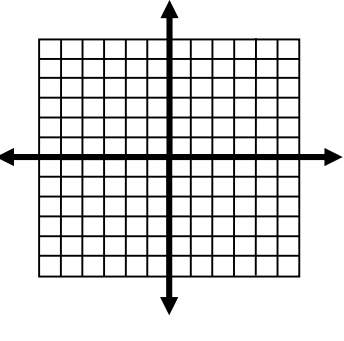
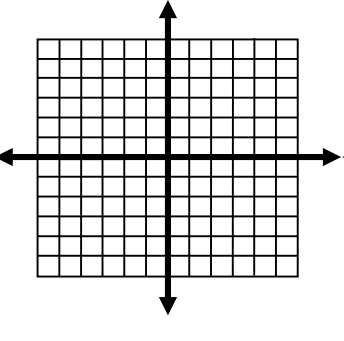
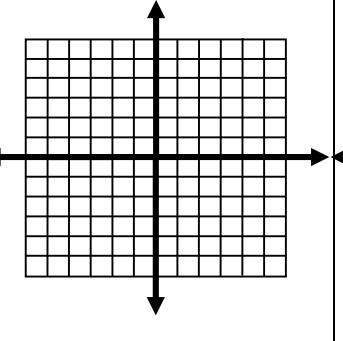
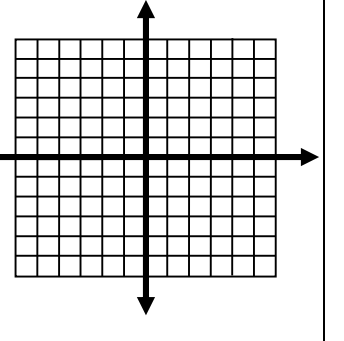
# Write and Graph Equations of Lines

Guided Notes: STUDENT EDITION

Equations of Lines and Slope  
Slope intercept form:

Slope Formula:

Graphing and Types of Slopes: Graph the following lines.

$y = 2x + 4$	$y = -\frac{1}{4}x - 2$	$y = -3$	$x = 5$
m = _____ b = _____	m = _____ b = _____	Acronym:	Acronym:
			
type of slope:	type of slope:	type of slope:	type of slope:

For each equation, rewrite in slope-intercept form and state the m & b values.

$3y - 8x = 2$	$9x = 4y - 11$	$3x - \frac{1}{4}y = 6$
m= _____ b= _____	m= _____ b= _____	m= _____ b= _____

# Use Parallel Lines and Transversals

Guided Notes: STUDENT EDITION

## Special Types of Lines:

TYPE OF LINE	PARALLEL LINES	PERPENDICULAR LINES
DEFINITION		
SLOPES OF THESE TYPE OF LINES		

State the negative reciprocal of the given slope.

1.  $m = \frac{1}{4}$

2.  $m = -6$

3.  $m = -\frac{2}{3}$

4.  $m = 9$

Find the slope of the given lines.

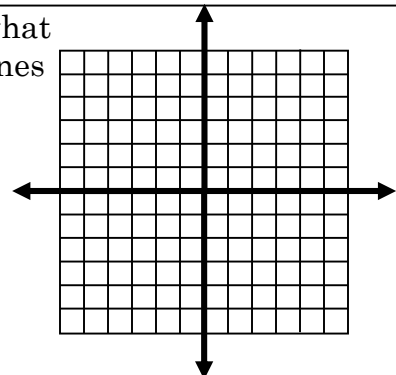
$j$  passes through  
(0, 3) and (3, 1)

$m$  passes through  
(-2, 7) and (-6, 1)

$k$  passes through  
(-4, -3) & (0, 3)

Make some conclusions.

Make a quick sketch to see what parallel and perpendicular lines look like.



# Use Parallel Lines and Transversals

## Guided Notes: STUDENT EDITION

**Write the equation of a line in slope intercept form:**

*Steps:* 1. Ask yourself “What two letters do I need to write the equation of a line?”

2. Identify which letters you need to still find.
3. If you need  $m$ , plug the points into the slope formula.
4. If you need  $b$ , plug  $m$  and an ordered pair  $(x, y)$  into the slope intercept formula and solve for  $b$ .
5. Write the equation of a line with the new  $m$  and  $b$ .

**TYPE I: Write the equation of the line that passes through the given y-intercept and given slope.**

1.  $m = 3, b = -3$

2.  $m = \frac{6}{7}, b = 15$

**TYPE II: Write the equation of the line that passes through the given point and given slope.**

3. Passes through  $(2, 3)$  and slope is 5.

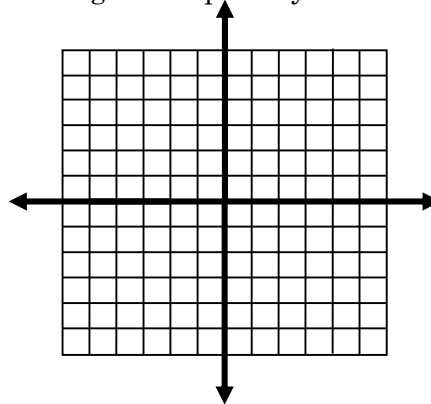
4. Passes through  $(6, -5)$  and slope is  $-\frac{1}{3}$

# Prove Lines Parallel

## Guided Notes: STUDENT EDITION

5. Passes through (5, -2) and slope is 0.

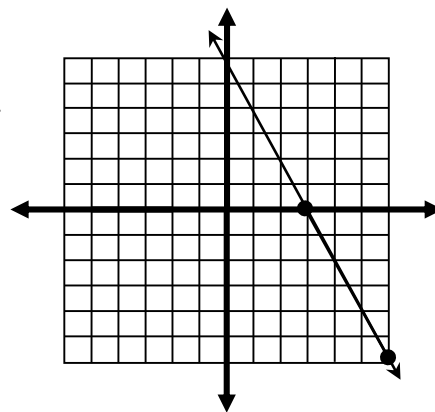
Remember: You can always check the b by graphing. Plot the point and move by counting the slope till you cross the y-axis.



**Type III: Write the equation of a line given two points.**

6. Passes through (4, -3) and (3, -6)

7.



**TYPE IV: Write the equation of a line given two points and must be parallel or perpendicular to another line.**

8. Passes through (3, 2)

Parallel to  $y = -\frac{1}{3}x - 1$

9. Passes through (4, 0)

Perpendicular to  $2x + y = 1$

# Prove Lines Parallel

## Guided Notes: STUDENT EDITION

**Practice:** Are these equations parallel, perpendicular, or neither?

1.  $l: y = \frac{1}{3}x - 2$     $h: 6y = 2x + 12$

2.  $q: 4x - 2y = 6$     $w: 2x + 4y = 6$

3. Which lines are  $\parallel$ ? Which are  $\perp$ ? A graph may help.

$$\begin{aligned}x &= 4 \\y &= -4 \\y &= 4x\end{aligned}$$

