

Name: _____

Date: _____

Topic: _____

Class: _____

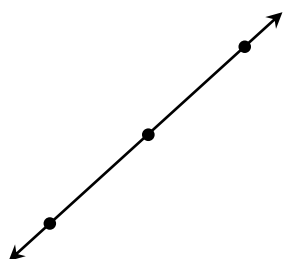
Main Ideas/Questions

Notes/Examples

Rate of Change

On a linear graph, this is called the _____ of the line!

Slope



- Slope is written as a _____ of the **vertical change** (_____) to the **horizontal change** (_____) between any two points on a line.
- This remains _____ for any two points on the same line.
- Slope is written as a _____ in _____.
- Variable for slope: _____

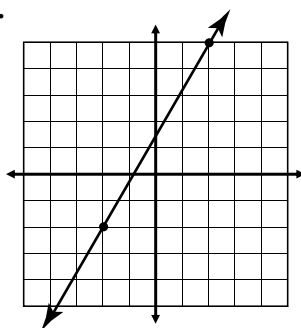
Types of Slope

Finding Slope on a Graph

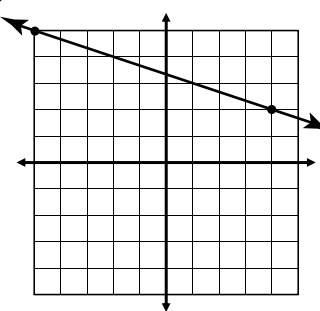
$m =$

Directions: Find the slope of each line. Write your answer in simplest form!

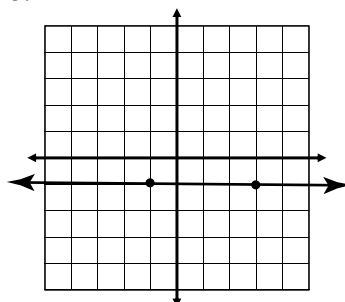
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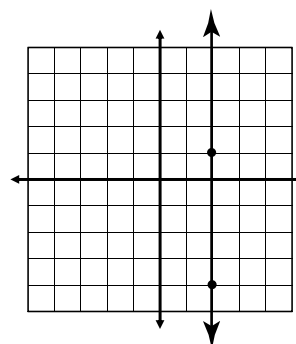
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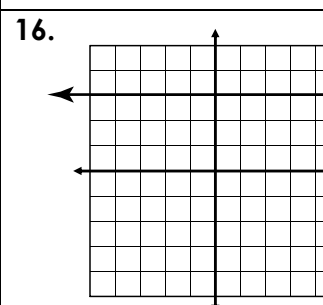
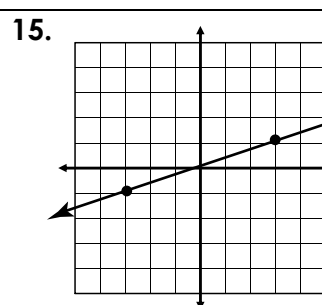
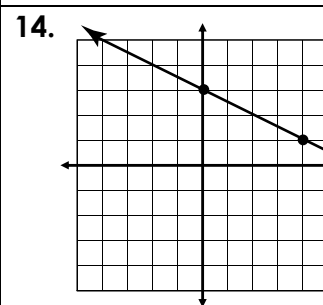
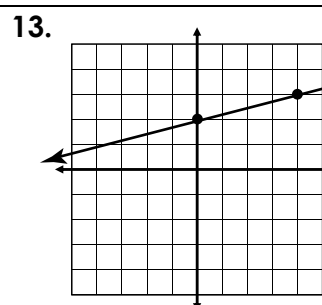
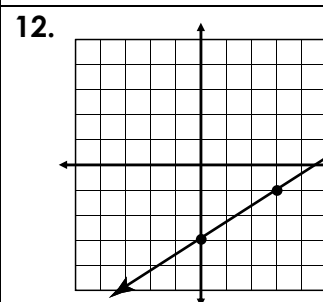
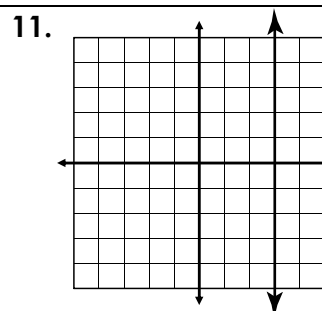
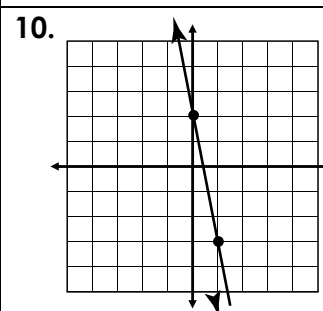
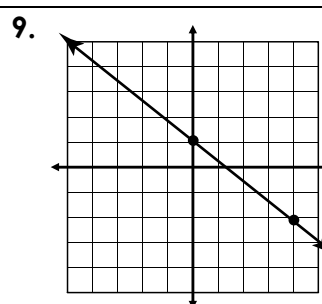
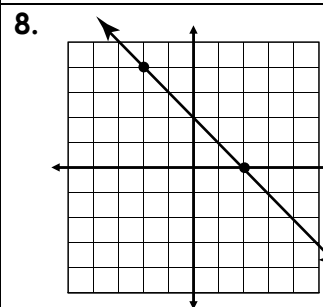
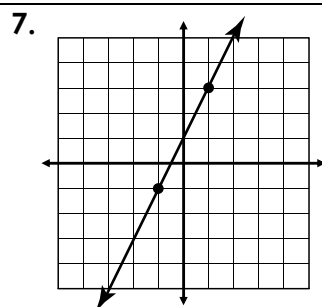
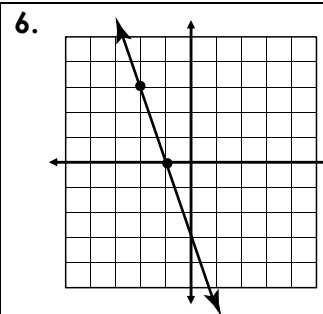
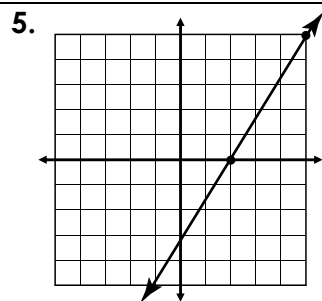


3.



4.



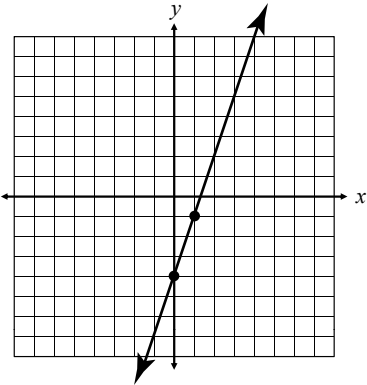
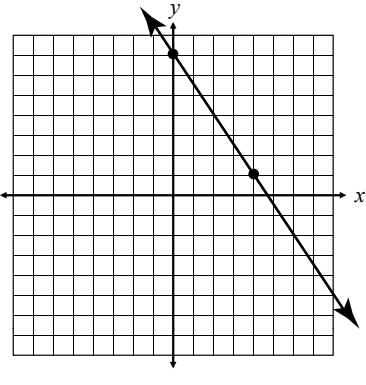


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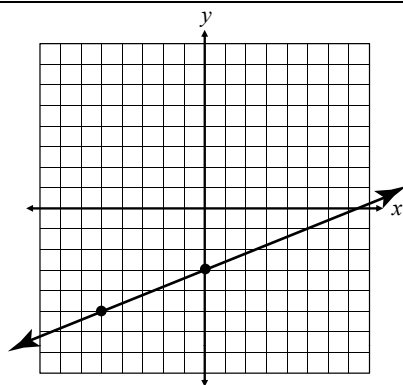
Main Ideas/Questions	Notes/Examples	
SLOPE FORMULA	The slope formula is used to find the slope between two points (x_1, y_1) and (x_2, y_2) .	
	Formula:	
	It is important to remember to SIMPLIFY your answer!	
EXAMPLES	Directions: Find the slope between each pair of points.	
	1. (1, 1) and (4, 3)	2. (-2, 4) and (10, -2)
	3. (-4, 5) and (-8, -5)	4. (10, 0) and (-2, 4)
	5. (5, 9) and (3, 9)	6. (-7, 8) and (-7, 5)
	7. (-1, 9) and (2, 3)	8. (-4, 13) and (6, -2)
	9. (5, 6) and (6, 5)	10. (9, -4) and (1, -4)

	11. (5, -9) and (3, -2)	12. (4, 6) and (4, 8)
GOING BACKWARDS	Sometimes you must complete the ordered pairs using a given slope. Example: If the slope of the line passing through the points (-5, 6) and (5, y) is $-\frac{4}{5}$, find y.	
MORE EXAMPLES	Directions: Find the missing value using the given slope.	
	13. (-3, -2) and (x, 6); $m = 2$	14. (0, -4) and (x, -7); $m = \frac{3}{2}$
	15. (-3, -4) and (-5, y); $m = -\frac{9}{2}$	16. (x, 2) and (6, 3); $m = -\frac{1}{2}$
	17. (-3, y) and (1, -7); $m = -4$	18. (x, 7) and (11, 8); $m = -\frac{1}{5}$
	19. (4, y) and (0, 5); $m = \frac{3}{4}$	20. (-3, y) and (9, -2); $m = \frac{1}{3}$

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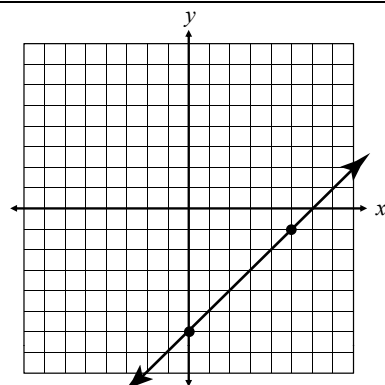
Main Ideas/Questions	Notes/Examples
Slope-Intercept Form	Linear equations are frequently written in slope-intercept form: m is the _____ and b is the _____
Examples	Directions: Given the slope and y-intercept of the line, write the equation in slope-intercept form. - slope = 2; y-intercept = -1 _____ - slope = $-\frac{3}{5}$; y-intercept = 4 _____ - slope = -3; y-intercept = 2 _____ - slope = -1; y-intercept = 7 _____ - slope = $\frac{1}{4}$; y-intercept = 0 _____ - slope = $-\frac{5}{2}$; y-intercept = -3 _____
Given a Graph	Directions: Identify the slope and y-intercept of the line on the graph. Then, write the equation of the line in slope-intercept form. 7.  $m =$ _____ $b =$ _____ Equation: _____ 8.  $m =$ _____ $b =$ _____ Equation: _____

9.



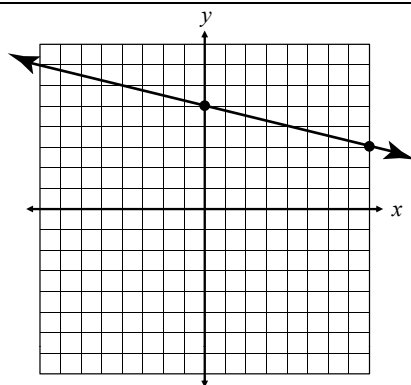
Equation: _____

10.



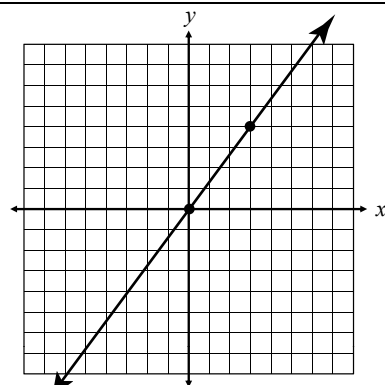
Equation: _____

11.



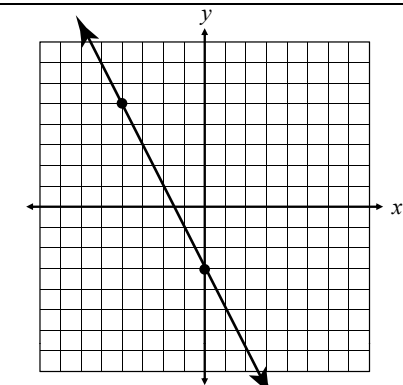
Equation: _____

12.



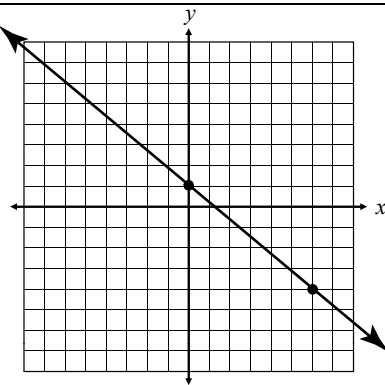
Equation: _____

13.



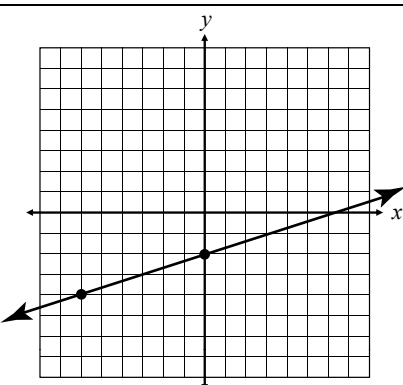
Equation: _____

14.



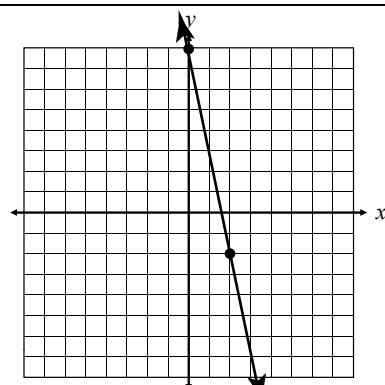
Equation: _____

15.



Equation: _____

16.



Equation: _____

Name:	Date:
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Main Ideas/Questions	Notes/Examples	
STANDARD FORM CONVERTING Standard Form $\rightarrow$ Slope-Intercept Form	Linear equations are also frequently written in standard form : 	
	Equations written in standard form can be converted to slope-intercept form by solving for y!	
	Directons: Write each equation in slope-intercept form. Identify the slope and y-intercept.	
	1. $2x + y = 3$	2. $4x + 5y = -30$
	3. $x - 3y = 12$	4. $x - y = -8$
	5. $4x - y = 0$	6. $3x - 2y = -14$
	7. $-6x + 4y = 20$	8. $x + 5y = -15$

9. $3x + 3y = -12$

10. $-2x - 4y = 36$

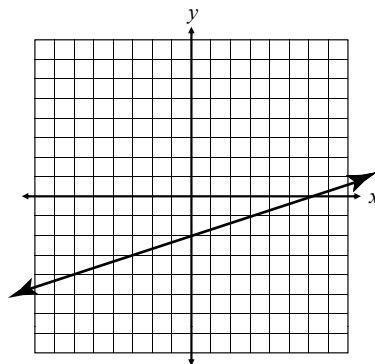
11. $12x - 9y = -9$

12. $4x + 10y = 10$

GIVEN GRAPHS

Directions: Determine the equation that best represents the line shown on the graph. ***Hint: Convert them to slope-intercept form!**

13.



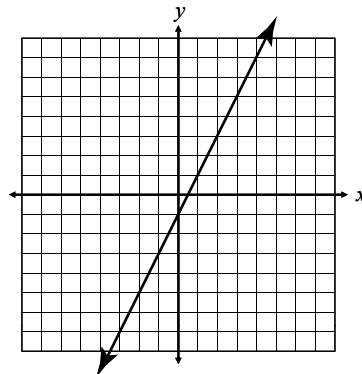
A. $x + 3y = -6$

B. $x - 3y = 6$

C. $3x + y = -2$

D. $3x - y = 2$

14.



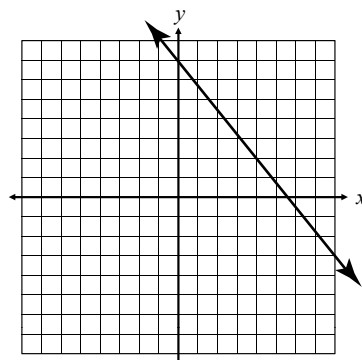
A. $x + 2y = -2$

B. $x - 2y = 2$

C. $2x + y = -1$

D. $2x - y = 1$

15.



A. $4x + 5y = 35$

B. $4x - 5y = -35$

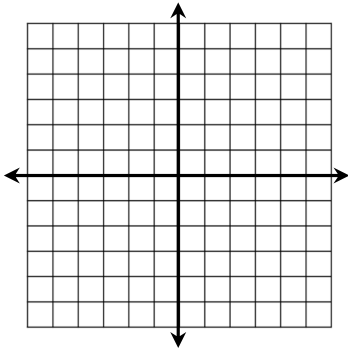
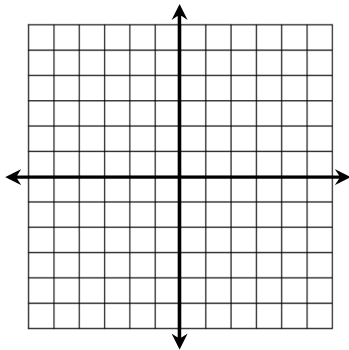
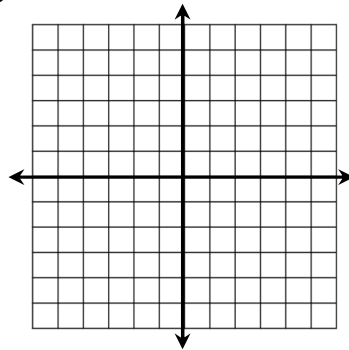
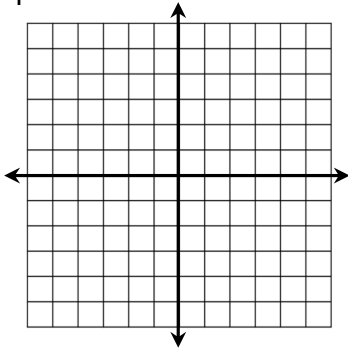
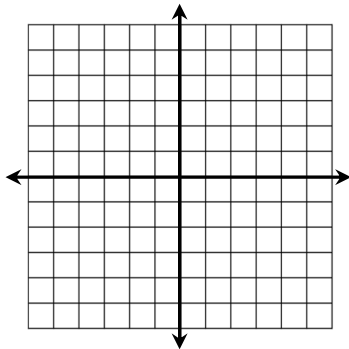
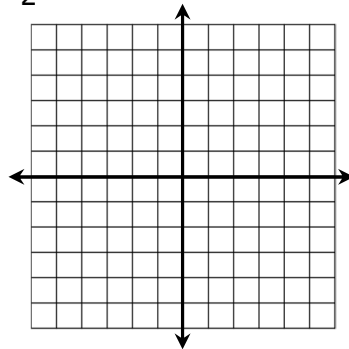
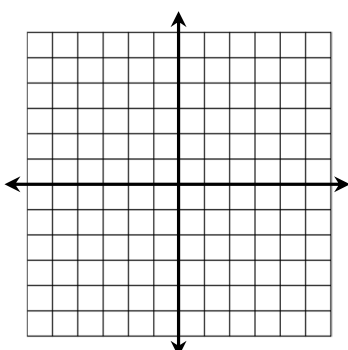
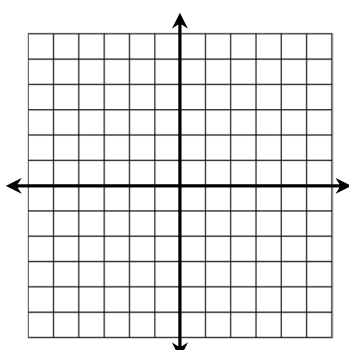
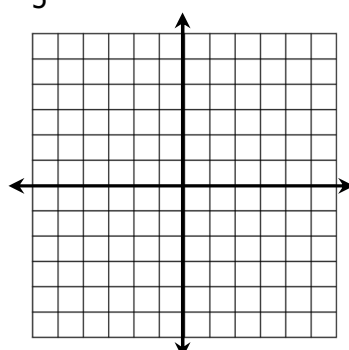
C. $5x + 4y = 28$

D. $5x - 4y = -28$

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Main Ideas/Questions	Notes/Examples
GRAPHING LINEAR EQUATIONS (By Slope-Intercept)	Use the steps below to graph an equation using slope-intercept form:
	① Write the equation in slope-intercept form .
	② Graph the y-intercept . This is always point $(0, b)$.
	③ Use the slope of the line to create more points. Remember slope is rise/run!
	④ Use a ruler to draw a line that extends through the points, placing an arrow on both ends.

Directions: Graph each equation using the slope-intercept method.

1. $y = -x + 5$ 	2. $y = -3x - 1$ 	3. $y = \frac{2}{5}x + 2$ 
4. $y = -\frac{1}{4}x + 3$ 	5. $y = 2x + 6$ 	6. $y = -\frac{3}{2}x - 5$ 
7. $y = -4x$ 	8. $y = -3 + 5x$ 	9. $y = 1 - \frac{6}{5}x$ 

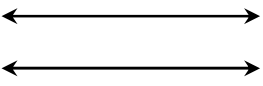
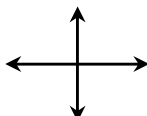
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Main Ideas/Questions	Notes/Examples	
WRITING LINEAR EQUATIONS (Given a Point and Slope)	To write the equation of the line passing through point (x_1, y_1) with slope (m) , you can use the point-slope formula: Point-Slope Formula: *Be sure to distribute and solve for y !*	
	Directions: Write the equation of the line that passes through the given point and has the given slope. Write all final answers in slope-intercept form.	
	1. $(4, 1)$; slope = 2	2. $(2, 4)$; slope = $\frac{1}{2}$
	3. $(-6, 0)$; slope = $\frac{2}{3}$	4. $(-8, -1)$; slope = $-\frac{3}{4}$
	5. $(4, -3)$; slope = -1	6. $(0, -9)$; slope = 4

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Main Ideas/Questions	Notes/Examples	
WRITING LINEAR EQUATIONS (Given Two Points)	To write a linear equation that passes through two points, (x_1, y_1) and (x_2, y_2) , use the slope formula followed by the point-slope formula: Slope Formula ➔ Point-Slope Formula 	
	Directions: Write the equation of the line that passes through the given two points. Write all final answers in slope-intercept form.	
EXAMPLES	1. $(-3, 7)$ and $(1, -1)$	2. $(-6, -7)$ and $(3, -4)$
	3. $(2, -1)$ and $(4, -6)$	4. $(1, 6)$ and $(2, 5)$
	5. $(-8, 1)$ and $(0, -5)$	6. $(-3, -8)$ and $(2, 7)$

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Main Ideas/Questions	Notes/Examples	
Parallel Lines 	Definition: _____ Algebraically, how do we know if two lines are parallel?	
Perpendicular Lines 	Definition: _____ Algebraically, how do we know if two lines are perpendicular?	
What are Negative Reciprocals?	Some examples: 1) $\frac{3}{4}$ & 2) 2 & 3) $-\frac{7}{8}$ & 4) 1 & 5) 0 &	
Given Ordered Pairs	Determine if segments AB and CD are parallel, perpendicular, or neither:	
	1. $\overline{AB}$ formed by $(-2, 3)$ and $(2, 6)$ $\overline{CD}$ formed by $(-1, 0)$ and $(3, 3)$	2. $\overline{AB}$ formed by $(0, 2)$ and $(5, 4)$ $\overline{CD}$ formed by $(1, 8)$ and $(3, 3)$
	3. $\overline{AB}$ formed by $(-1, 8)$ and $(2, 6)$ $\overline{CD}$ formed by $(-1, 2)$ and $(3, 3)$	4. $\overline{AB}$ formed by $(2, 3)$ and $(-1, 4)$ $\overline{CD}$ formed by $(-5, 3)$ and $(-4, 6)$