Name: _____

UNIT #4 Study Guide
COMMON CORE ALGEBRA I

Study Guide

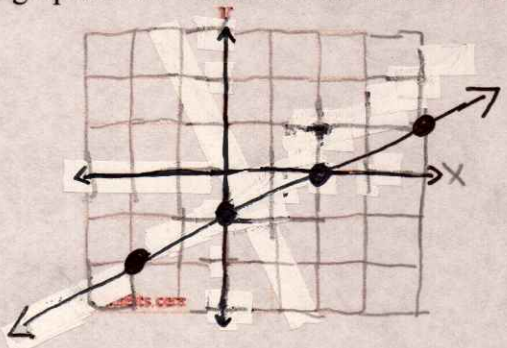
PART I QUESTIONS: Show all of your work.

1. Which of the following is the slope of the line that passes through the points $(-4, -6)$ and $(1, 9)$

x	y
<	>

$M = \frac{y\ change}{x\ change} = \frac{\square}{\square} = $ ____

2. Which equation could correspond to the graph of the linear function shown below?



$M =$ ____ ← fraction

$B =$ ____

$y =$ _____

3. A wheel with a specific circumference will move 540 inches when rolled 20 times. How far will the same wheel move, to the nearest inch, in 9 rolls?

$y = MX$

$y = (\ )(\ )$

$y =$ _____

x	y
9	
20	540

← inches after 9 rolls.

$M = \frac{540}{20} = \frac{\text{in}}{\text{distance per roll}}$

4. A line with a slope of -3 passes through the point $(4, -5)$. Which of the following is the equation of the line?

$M =$ ____

$B =$ ____

$y =$ _____

$y = MX + B$

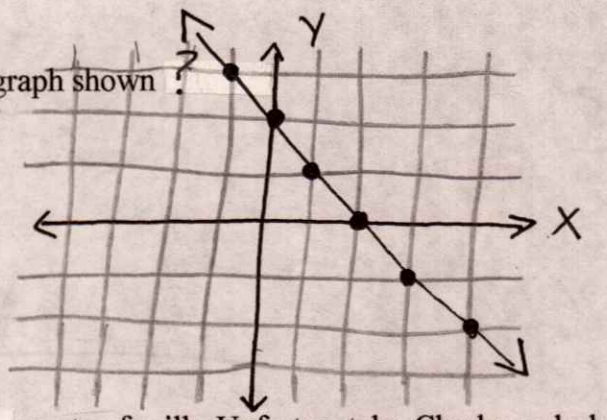
$y = (\ )X + B$

5. A rental car company charges a base fee of # 25 plus 29¢ per mile driven. Which of the following equations models the charge y for renting a car based on the number of miles, x, driven?

$M =$ ____ $y =$ ____

$B =$ ____

6. Which of the following is the equation of the graph shown?



$M =$ ____

$B =$ ____

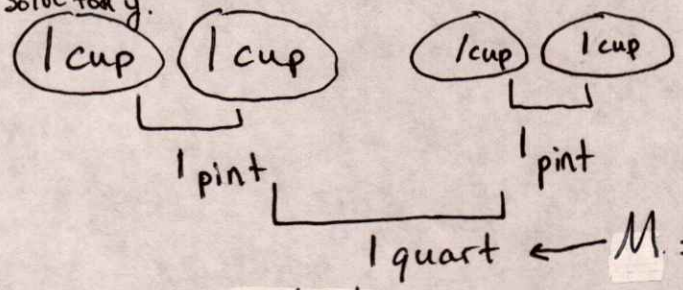
$y =$ ____

7. Charles is making a recipe that calls for 5 quarts of milk. Unfortunately, Charles only has a single cup measuring device. If there are two cups in a pint and two pints in a quart, then how many cups will Charles need for 5 quarts of milk? If B=0, solve for y.

x

$y = Mx + B$

$y = (\ )(\ ) + 0$



x	y
0	0
5	

8. Which of the following equations describes all points on a vertical line that passes through the point (-4, 8)

↖ only touches x

vertical Line $x =$ ____

horizontal Line $y =$ ____

9. A sequence is defined by the rule. If $f(x) = 4x+2$ If $f(1) = 6$ then what does $f(7) =$ ____ ?

$f(1) = 4(1) + 2$

$f(1) = 4 + 2$

$f(1) = 6$

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10. If graphed in the coordinate plane, would the line $y = 3x + 6$ pass through the point $(-5, -9)$? Explain how you arrived at your answer. Use Substitution.

Yes, because the last equation is ____.

11. An arithmetic sequence has a B term of 6 and a M term of 8. What is its 3rd term? Show how you arrived at your answer.

B = ____ M = ____

f(__) = ____

x	f(x)
0	
1	
2	
3	

+ ____ + ____ + ____

PART III QUESTIONS: Show all of your work

12. As a large truck fills its gas tank, the volume of gas, in gallons, can be modeled with the linear function $y = 7.1x + 5$, where y is the volume of gas and x is the number of minutes it has been filling. Give a physical interpretation for both the 7.1 and 5 parameters in the linear model. Use appropriate units in your explanation.

7.1 is the ____ which is gallons per minute being filled

5 is the ____ which is the starting ____.

13. Write the equation of the line that passes through the points $(5, 6)$ and $(3, 8)$. Express your answer in simplest $y = mx + b$ form.

x	y

____ x change

____ y change

$M = \frac{y \text{ change}}{x \text{ change}} = $ ____

$y = Mx + B$

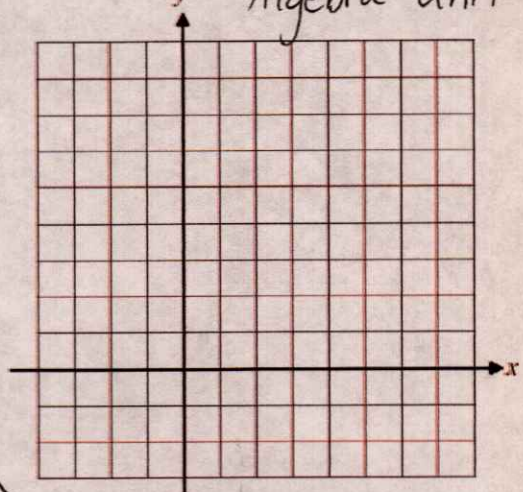
$(\ ) = (\ )(\ ) + B$

____ = B

get y by itself

14. Graph the line $y - 4x = -3$ on the axes provided.

x	y
0	
1	
2	
3	



15. Use the graph from #14. At what value of y does the line have when $x = 2$ Show how you determined your answer.

Substitute

$y - 4x = -3$

$y - 4(\ ) = -3$

x	y
2	

16. A company produces boxes of DVD's at a rate of 80 boxes per hour. They begin to produce boxes when they first open for the day and after 4 hours have 573 boxes in stock. How many boxes were in stock when they opened?

$y = Mx + B$ (x: 4, y: 573)

$M = 80$

$y = (\ )x +$

$(\ ) = (\ )(\ ) + B$ ← solve for B

$y = 80x +$ ____

17. Use the same company from problem #16. Write a linear model for the amount of boxes, y as a function of the number of hours since they opened, x Use your model to predict the number of boxes in stock at the end of 9 hours of work.

x ↑ Substitute

$y = 80x + 253$

____ boxes will be at the company at the end of the day.