

Name _____

Date _____



Summer Reading Assignment for College Algebra

Before the first day of College Algebra class, students must complete all problems enclosed in this packet. This is a review of what you previously learned in Algebra II. If you have trouble, try getting help from the Internet at www.purplemath.com or from a peer or mentor.

The College Algebra course traditionally serves as the intermediate course between Algebra II and Pre-Calculus. Prerequisites for this course are Algebra I, Geometry, and Algebra II. This helps to prepare the student for the SAT and college placement tests.

The College Algebra teachers look forward to working with you in class. Completing this packet will prepare you for the first day of class. This will count as your first homework assignment. As with all homework, you must show work to receive credit.

NAME _____ DATE _____ SECTION _____

3-15

Solving Equations with Variables on Both Sides

Sometimes equations are written with variables on both sides of the equal symbol. In order to solve these types of equations, you must rewrite the equations so that the variables are on the same side of the equation.

Directions: Solve each equation below. Write the letter of the problem above its solution to complete the statement at the end of the activity.

P. $7x = x - 54$

U. $-8x - x = 24 - x$

R. $4x - 9 = 3 - 4x$

H. $-8 + 5x = 3x - 11 + 5x$

L. $x - 10 = -2x + 2$

A. $-13 + x = 4x + 23 + 6x$

O. $-1 + x = 7x + 2$

F. $3(2x - 1) + x = x - 3$

B. $3x - 7 = x + 11$

V. $4(3x - 5) - x = -x + 16$

W. $4x - 9 = 3 + 4x$

T. $2(1 - x) = 3(x + 9)$

N. $3(x - 7) = 2x$

E. $2(3 - 4x) = 4 + 4(6 - x)$

K. $3x = 3(x - 2)$

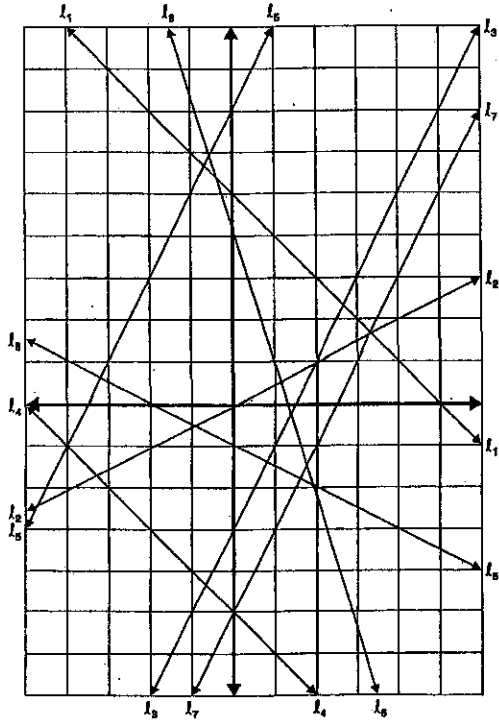
S. $9(2x + 3) = -36 - 27(x + 2)$

In 1637, René Descartes used the first letters of the

-4	4	-9	1	-4	9	-5.5	-5	0	-0.5	1.5
-1	21	-0.5	#	21	8	-4	4	-9	-5.5	-2.6

4-4
(continued)

Finding the Slope and Y-intercept from a Graph



4-5

Using the Slope and Y-intercept to Graph a Line

The slope and y-intercept enable you to draw the graph of a linear equation. If the graph is drawn correctly, it contains all of the points that are solutions to the equation.

Directions: Use a ruler to graph the equation of each line described below. The graph is given on the next page. If you are accurate, each line should pass through two labeled points. Write the letters of these points on the lines before each problem.
Hint: Some letters might need to be reversed.

- | | |
|-----------|----------------------------|
| 1. _____ | $m = 2, b = 4$ |
| 2. _____ | $m = -\frac{1}{2}, b = -1$ |
| 3. _____ | $m = 2, b = -6$ |
| 4. _____ | $m = \frac{1}{4}, b = -2$ |
| 5. _____ | $m = 2, b = 0$ |
| 6. _____ | $m = -\frac{3}{2}, b = 3$ |
| 7. _____ | $m = \frac{7}{4}, b = 3$ |
| 8. _____ | $m = \frac{5}{2}, b = -1$ |
| 9. _____ | $m = -1, b = -6$ |
| 10. _____ | $m = 1, b = -7$ |

What do these letters represent? _____

* Do only odds on this page.

Finding the Slope of a Line

If you know two points on a line, or the equation of a line, you can find the slope of a line.

To find the slope of a line, do one of the following:

If you are given two points, use the formula $m = \frac{y_2 - y_1}{x_2 - x_1}$ where m stands for the slope and (x_1, y_1) and (x_2, y_2) are two points on the line.

If you are given an equation in slope-intercept form, use the formula $y = mx + b$ where m stands for the slope.

If you are given an equation in standard form, use the formula $Ax + By = C$.

Write the formula in slope-intercept form. The slope is $-\frac{A}{B}$.

Directions: Each line is described by two points or an equation. Find the slope, then locate the slope in the Answer Bank. Write the letter of each answer in the blank before the statement in order, starting with the first one, to complete the statement at the end of the activity. Some letters are used more than once; others are not used at all.

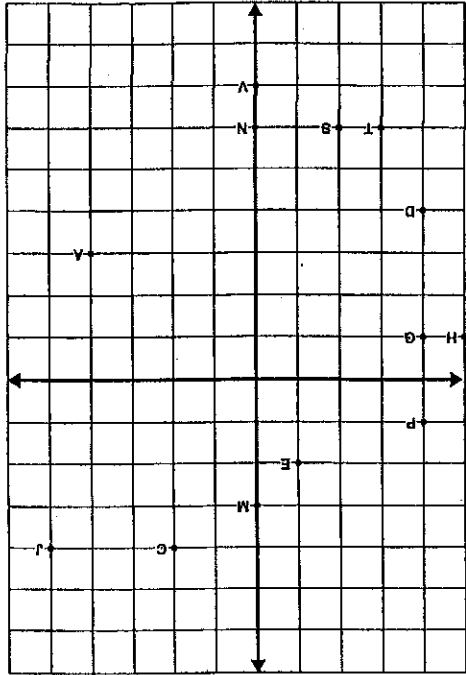
1. $(0,2)$ and $(5,2)$
2. $(-3,1)$ and $(2,-2)$
3. $y = 3x + 4$
4. $(5,-3)$ and $(1,2)$
5. $(-1,0)$ and $(-4,1)$
6. $2x + y = -1$
7. $y = 6x - 1$
8. $(-3,5)$ and $(-3,4)$
9. $y = -x - 7$
10. $(0,1)$ and $(1,7)$
11. $(1,-2)$ and $(-2,4)$
12. $x - 4y = 7$
13. $3x - 4y = 10$
14. $(-3,-4)$ and $(2,-4)$
15. $-3x + 2y = 6$
16. $18x - 3y = -20$

Answer Bank	
Q	0
R	-2
N	3
M	3
X	2
D	4
T	-3
G	3
H	-1
I	1
L	4
U	-5
A	-3
E	6

William: First used the symbol for parallel and Pierre

first used the symbol for perpendicular.

Using the Slope and Y-intercept to Graph a Line



Finding the X- and Y-intercepts

Since two points determine a line, using the x-intercept and the y-intercept is one way to graph the equation of a line. The point where a graph intersects the x axis is $(x, 0)$. x is called the x-intercept of the graph. The point where a graph intersects the y axis is $(0, y)$. y is called the y-intercept of the graph.

To find the x-intercept, substitute 0 for y and solve for x .

To find the y-intercept, substitute 0 for x and solve for y .

Directions: Find the x- and y-intercepts of the graph of each equation. Write your answer in the space provided after the intercepts. Then find the letter of your answer in the Answer Bank and write the letter in the blank before the intercepts. Finally, write the letters in order, starting with the first one, in the blanks to complete the statement at the end of the activity on the next page. Some letters will be used more than once; others will not be used at all.

1. $y = 2x + 4$

_____ x-intercept = _____

_____ y-intercept = _____

2. $y = 3x + 1$

_____ x-intercept = _____

_____ y-intercept = _____

3. $-8x + y = 6$

_____ x-intercept = _____

_____ y-intercept = _____

4. $y = \frac{1}{4}x - 6$

_____ x-intercept = _____

_____ y-intercept = _____

5. $y = 5x - 5$

_____ x-intercept = _____

_____ y-intercept = _____

Answer Bank

F. 0

B. -2

V. $\frac{1}{3}$

E. 1

X. 10

Y. 15

O. 24

U. 7

M. $-\frac{1}{3}$

B. -5

L. 6

I. 12

T. 8

D. -36

R. $-\frac{1}{2}$

A. 4

C. 2

P. -8

N. -3

Finding the X- and Y-intercepts

6. $x = 7$

_____ x-intercept = _____

_____ y-intercept = _____

7. $y = \frac{1}{3}x + 12$

_____ x-intercept = _____

_____ y-intercept = _____

8. $y = 8x$

_____ x-intercept = _____

_____ y-intercept = _____

9. $2y = x - 1$

_____ x-intercept = _____

_____ y-intercept = _____

10. $x = \frac{1}{3}y + 1$

_____ x-intercept = _____

_____ y-intercept = _____

11. $y = 15$

_____ x-intercept = _____

_____ y-intercept = _____

Parallel lines have the _____
_____ -intercepts.