NAME: _____ PERIOD: _____ DATE: _____

Homework Problem Set

Write a system of equations for Problems 1 and 2. Be sure to define your variables. Then create a table and a graph of each problem and find a solution.

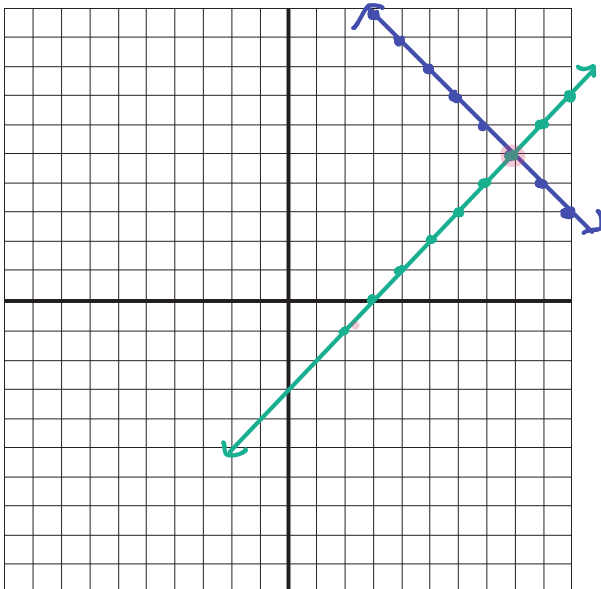|	
1. The difference of two numbers is 3 and their sum is 13. What are the two numbers?	2. The difference of two numbers is -10 and the sum is -4. What are the two numbers?

Problem 1

Let X = _first number_

Let y = _second number_

System of Equations:

$$x - y = 3$$
$$x + y = 13$$

1st number	2nd number	Sum of numbers	1st number	2nd number	Difference of numbers
10	3	13	7	4	3
9	4	13	8	5	3
8	5	13	9	6	3
7	6	13	10	7	3

Solution: _(8,5)_

Problem 2

Let X = _first number_

Let y = _second number_

System of Equations:

$$x - y = -10$$
$$x + y = -4$$

1st number	2nd number	Sum of numbers	1st number	2nd number	Difference of numbers
-8	4	-4	-5	5	-10
-7	3	-4	-6	4	-10
-6	2	-4	-7	3	-10
-5	1	-4	-8	2	-10
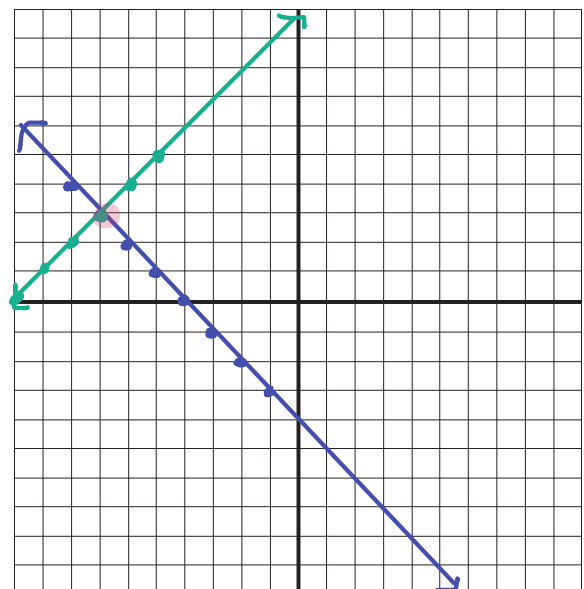
Solution: _(-7,3)_

Write a system of equations for Problems 3 and 4. Be sure to define your variables. You do NOT need to solve these problems.

3. Jack and his sister, Malonie, are 4 years apart in age. The sum of their ages is 28. What are their ages?

    Let j = _Jack's age_

    Let m = _Malonie's age_

    System of Equations:

    $$j - m = 4$$
    $$j + m = 28$$

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4. Two of Julie's textbooks are a total of $65. The difference in price between the two books is $9. What is the cost of each book?

    Let x = _textbook #1_
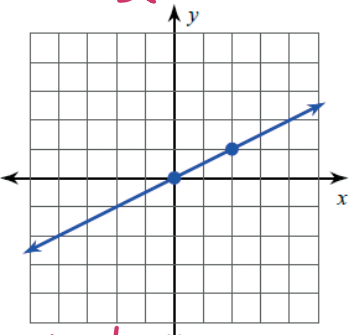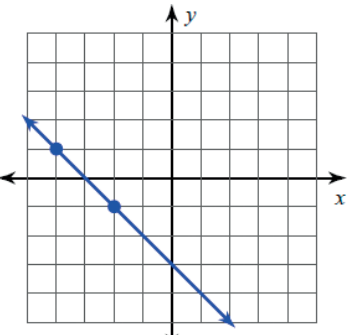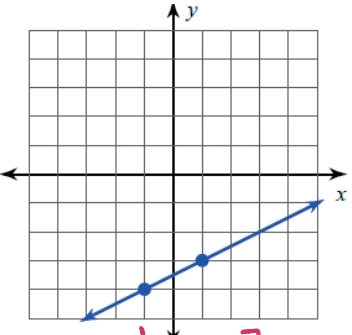
    Let y = _textbook #2_

    System of Equations:
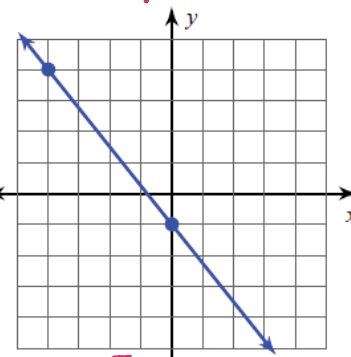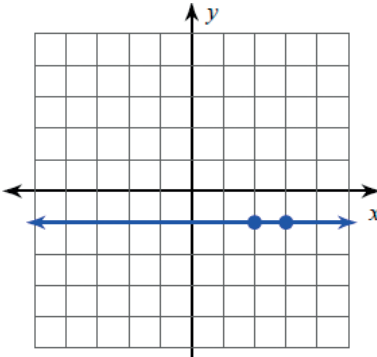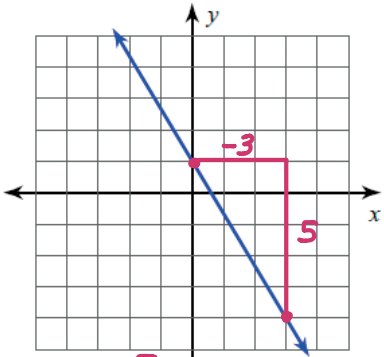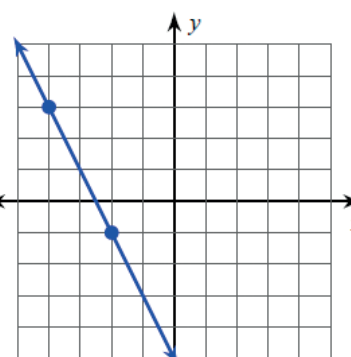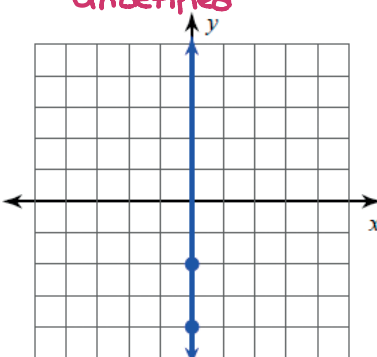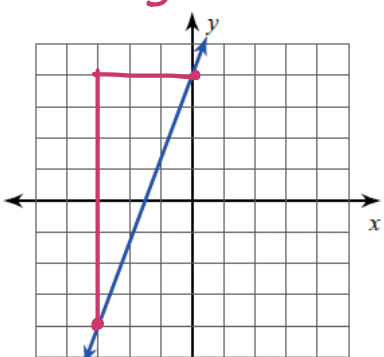
    $$x + y = 65$$
    $$x - y = 9$$
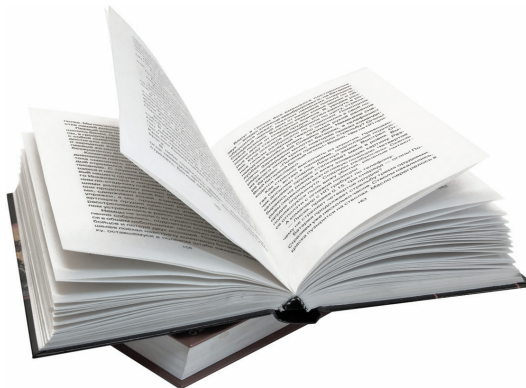
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Spiral REVIEW—Determining Slope and *y*-intercept from Graphs

Find the slope and *y*-intercept of each line.

5.   slope = $\frac{1}{2}$ *y*-intercept = 0

$y = \frac{1}{2}x + 0$

6.   slope = -1 *y*-intercept = -3

$y = -x - 3$

7.   slope = $\frac{1}{2}$ *y*-intercept = $-\frac{7}{2}$ (-3.5)

$y = \frac{1}{2}x - \frac{7}{2}$

8.   slope = $-\frac{5}{4}$ *y*-intercept = -1

$y = -\frac{5}{4}x - 1$

9.   slope = 0 *y*-intercept = -1

$y = -1$

10.   slope = $-\frac{5}{3}$ *y*-intercept = 1

-3

5

$y = -\frac{5}{3}x + 1$

11.   slope = -2 *y*-intercept = -5

$y = -2x - 5$

12.   slope = _____   *y*-intercept = _____
undefined

$x = 0$

-

13.   slope = $\frac{8}{3}$ *y*-intercept = 4

$y = \frac{8}{3}x + 4$

Spiral REVIEW—Solving Equations

Solve each equation.

14. $-16 - 6v = -2(8v - 7)$

$$-16 - 6v = -16v + 14$$
$$+16v \quad +16v$$
$$-16 + 10v = +14$$
$$+16 +16$$
$$\frac{10v}{10} = \frac{30}{10}$$
$$\boxed{v = 3}$$

15. $2(6b + 8) = 4 + 6b$

$$12b + 16 = 4 + 6b$$
$$-6b -6b$$
$$6b + 16 = 4$$
$$-16 \; -16$$
$$\frac{6b}{6} = \frac{-12}{6}$$
$$\boxed{b = -2}$$

Spiral REVIEW—Graphing Lines

16. Match each equation with its graph. Explain your reasoning.

A. $y = 5x - 6$

Graph 4

B. $x + 2y = -12$

$$\frac{2y}{2} = \frac{-x}{2} - \frac{12}{2}$$
$$y = -\frac{1}{2}x - 6$$
Graph 5

C. $2x + y = 4$

$$y = -2x + 4$$
Graph 1

D. $y = 3x - 6$

Graph 3

E. $x = -y - 4$

$$\frac{-x -x}{0 = -y - x - 4}$$
$$\frac{+y +y}{y = -x - 4}$$
Graph 2

* find the slope
& y-intercept of
each equation.
Locate y-int &
check slope to
match

1

2

3

4

5