

Week One

Foundations to  
Algebra

Desoto County  
Schools

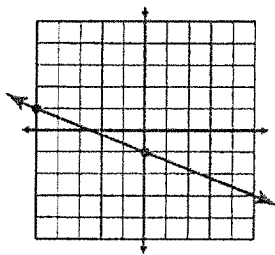
*I can write Linear Equations in*  
**SLOPE-INTERCEPT FORM GIVEN:**

**The Slope and  
y-Intercept**

slope =  $\frac{1}{3}$ ; y-intercept = -5

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

**A Graph**



$m = -2/5$ ;  $b = -1$

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

**An Equation in  
Standard Form**

$4x - 2y = 14$

$$\frac{-2y}{-2} = \frac{-4x + 14}{-2}$$

$$y = 2x - 7$$

**A Point and Slope**

$(-1, 3)$ ; slope = -3

$$y - 3 = -3(x + 1)$$

$$y - 3 = -3x - 3$$

$$\frac{+3}{+3} \qquad \frac{+3}{+3}$$

$$y = -3x$$

**Two Points**

$(-4, -7)$  and  $(8, -13)$

$$m = \frac{-13 + 7}{8 + 4} = \frac{-6}{12} = -\frac{1}{2}$$

$$y + 7 = -\frac{1}{2}(x + 4)$$

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

$$\frac{-7}{-7} \qquad \frac{-2}{-7}$$

$$y = -\frac{1}{2}x - 9$$

Name:

Date:

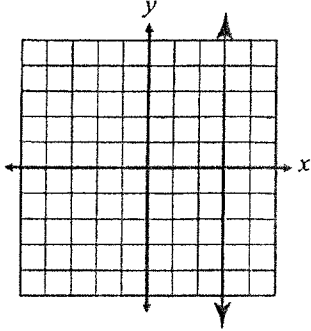
Topic:

Class:

# VERTICAL & HORIZONTAL LINES

### Vertical Lines

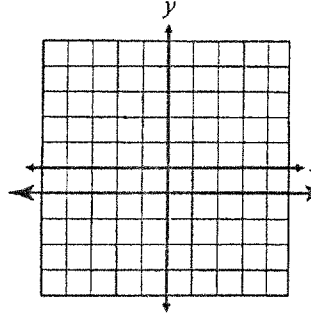
A vertical line is written in the form  $x = a$ , where  $a$  represents the line's  $x$ -intercept.



The equation of the vertical line graphed above is  $x = 3$

### Horizontal Lines

A horizontal line is written in the form  $y = a$ , where  $a$  represents the line's  $y$ -intercept.

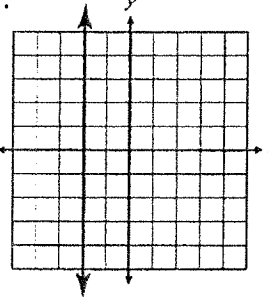
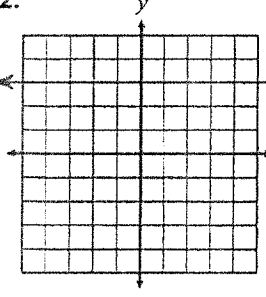
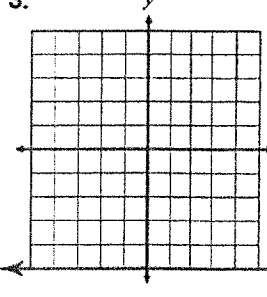
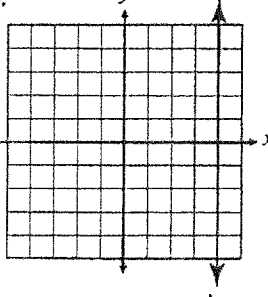
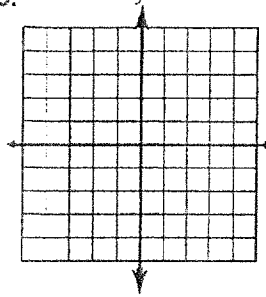
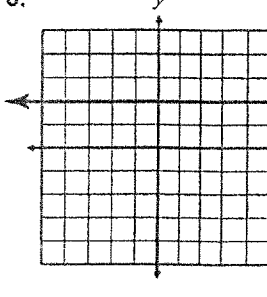


The equation of the horizontal line graphed above is  $y = -1$

\*\*Remember, if the line intersects the  $x$ -axis, it's  $x = a$ , if a line intersects the  $y$ -axis, it's  $y = a$ .

# EXAMPLES

Directions: Write the equation of the line shown on the graph.

1.  $x = -2$	2.  $y = 3$	3.  $y = -5$
4.  $x = 4$	5.  $x = 0$	6.  $y = 2$

# 4-3 Study Guide and Intervention

## Graphing Equations in Slope-Intercept Form

### Slope-Intercept Form

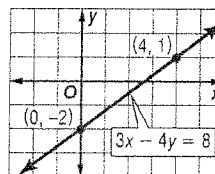
**Slope-Intercept Form**  $y = mx + b$ , where  $m$  is the given slope and  $b$  is the  $y$ -intercept

**Example 1** Write an equation of the line whose slope is  $-4$  and whose  $y$ -intercept is  $3$ .

$y = mx + b$       Slope-intercept form  
 $y = -4x + 3$       Replace  $m$  with  $-4$  and  $b$  with  $3$ .

**Example 2** Graph  $3x - 4y = 8$ .

$3x - 4y = 8$       Original equation  
 $-4y = -3x + 8$       Subtract  $3x$  from each side.  
 $\frac{-4y}{-4} = \frac{-3x + 8}{-4}$       Divide each side by  $-4$ .  
 $y = \frac{3}{4}x - 2$       Simplify.



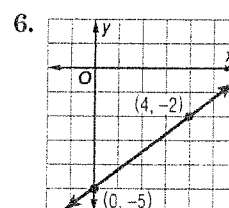
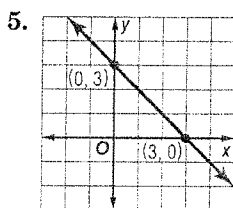
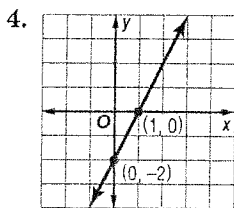
The  $y$ -intercept of  $y = \frac{3}{4}x - 2$  is  $-2$  and the slope is  $\frac{3}{4}$ . So graph the point  $(0, -2)$ . From this point, move up  $3$  units and right  $4$  units. Draw a line passing through both points.

### EXERCISES

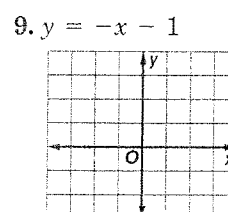
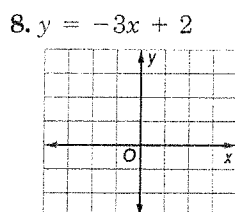
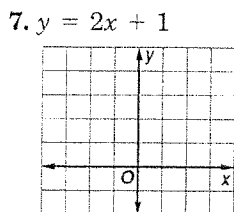
Write an equation of the line with the given slope and  $y$ -intercept.

1. slope:  $8$ ,  $y$ -intercept  $-3$       2. slope:  $-2$ ,  $y$ -intercept  $-1$       3. slope:  $-1$ ,  $y$ -intercept  $-7$

Write an equation of the line shown in each graph.



Graph each equation.



Name: \_\_\_\_\_

Slope and y-intercept

Total Score: \_\_\_\_\_

Monday

1)  $y = -\frac{5}{2}x - 5$

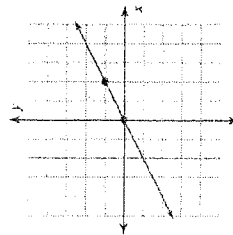
Slope:

y-intercept:

x	y
-2	3
-1	5
0	7
1	9
2	11

Slope:

y-intercept:



Slope:

y-intercept:

Number Correct: \_\_\_\_\_

Tuesday

4)  $y = -\frac{4}{3}x - 1$

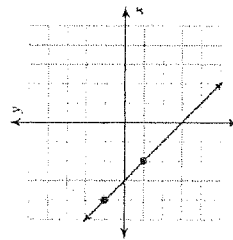
Slope:

y-intercept:

x	y
-3	5
-2	2
-1	-1
0	-4
1	-7

Slope:

y-intercept:



Slope:

y-intercept:

Number Correct: \_\_\_\_\_

Wednesday

7)  $y = -x + 3$

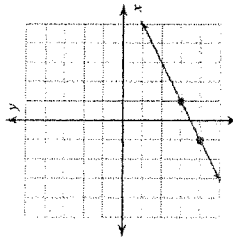
Slope:

y-intercept:

x	y
0	3
1	5.5
2	8
3	10.5
4	13

Slope:

y-intercept:



Slope:

y-intercept:

Number Correct: \_\_\_\_\_

Thursday

10)  $2x - y = 1$

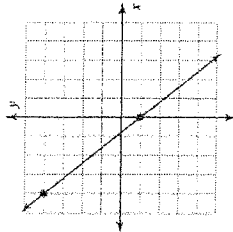
Slope:

y-intercept:

x	y
1	-17
2	-13
3	-9
4	-5
5	-1

Slope:

y-intercept:



Slope:

y-intercept:

Number Correct: \_\_\_\_\_

Friday

13)  $x + 2y = -8$

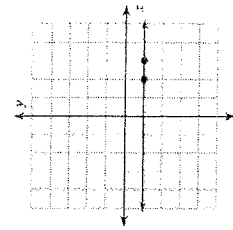
Slope:

y-intercept:

x	y
-6	-4
-5	-9
-4	-14
-3	-19
-2	-24

Slope:

y-intercept:



Slope:

y-intercept:

Number Correct: \_\_\_\_\_

14)

11)

8)

5)

2)

15)

12)

9)

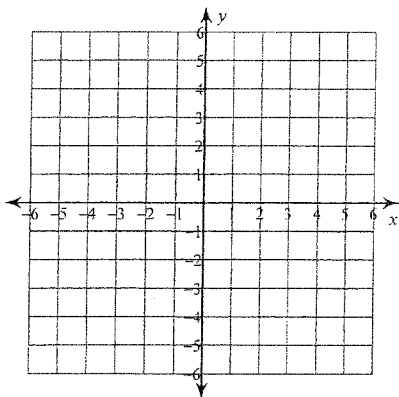
6)

3)

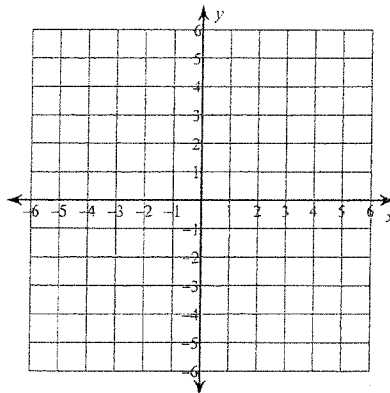
# Graphing Lines in Slope-Intercept Form

Sketch the graph of each line.

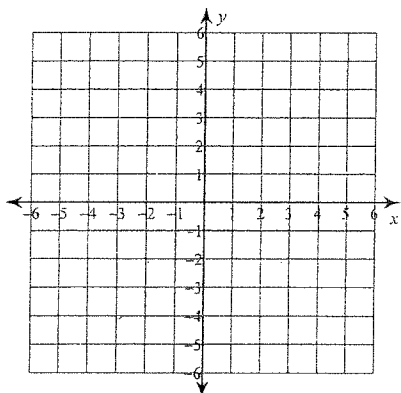
1)  $y = \frac{1}{4}x - 1$



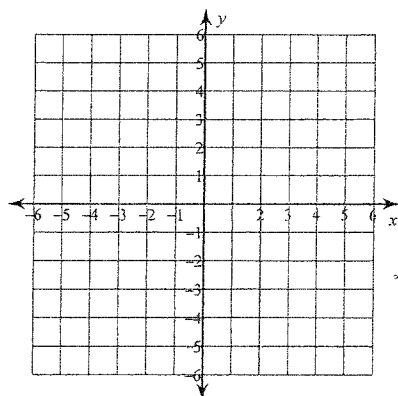
2)  $y = -x + 2$



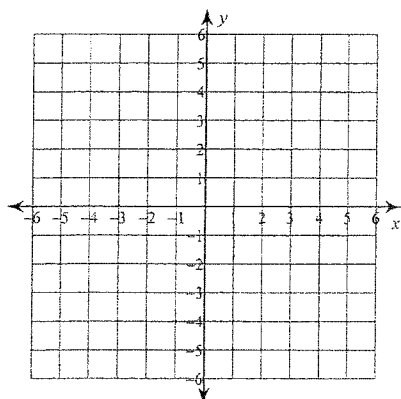
3)  $y = x + 1$



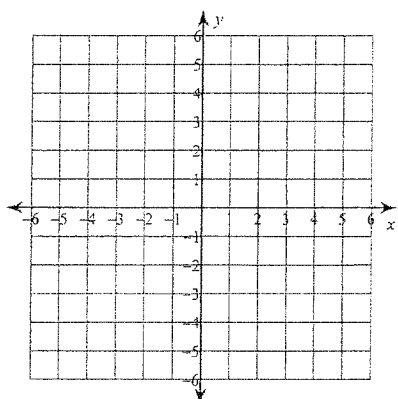
4)  $y = \frac{4}{3}x - 4$



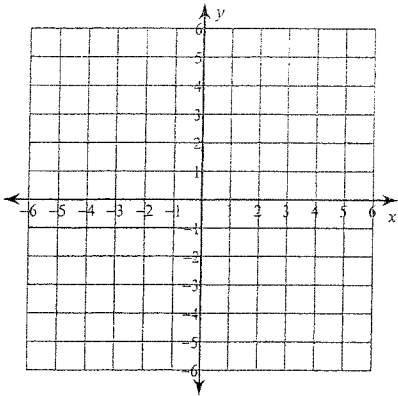
5)  $y = -3x - 3$



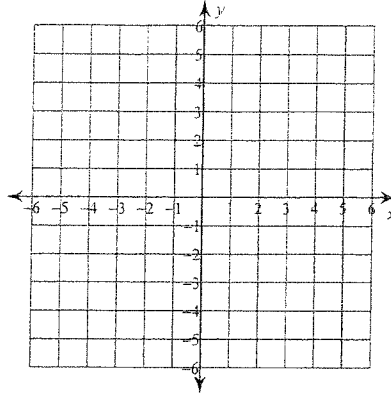
6)  $y = 4$



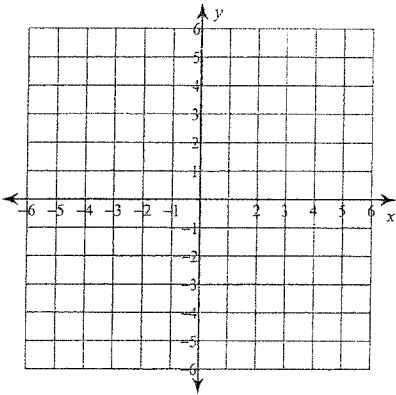
7)  $y = \frac{3}{5}x - 1$



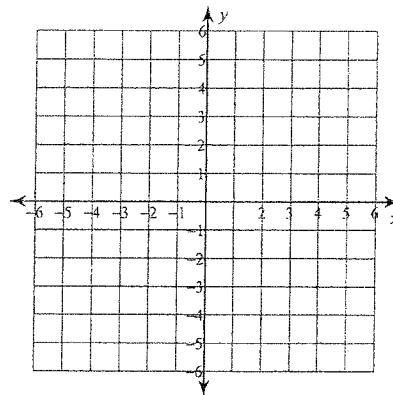
8)  $x = 5$



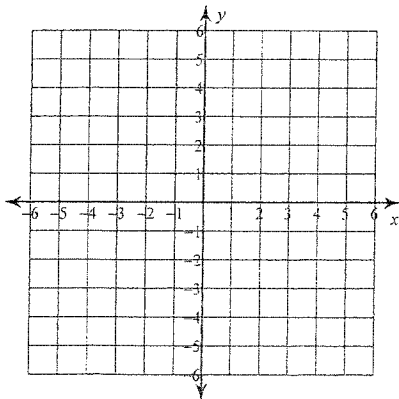
9)  $y = 3$



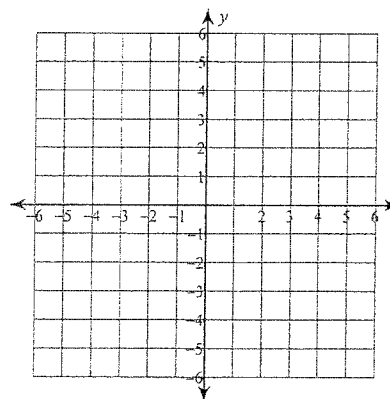
10)  $y = 3x - 2$



11)  $y = 4x + 3$



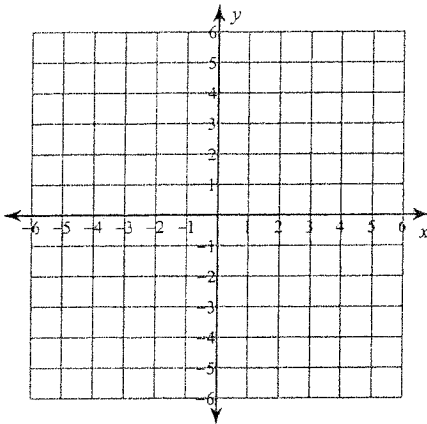
12)  $y = \frac{6}{5}x + 5$



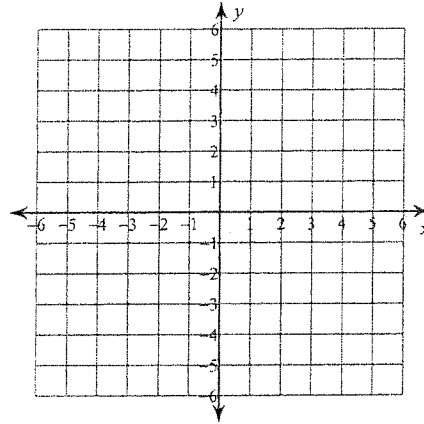
# Graphing Lines in Standard Form

Sketch the graph of each line.

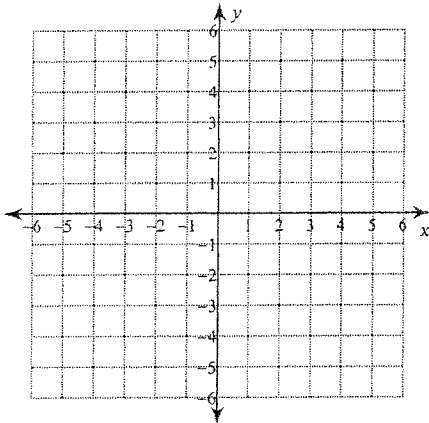
1)  $4x + y = 0$



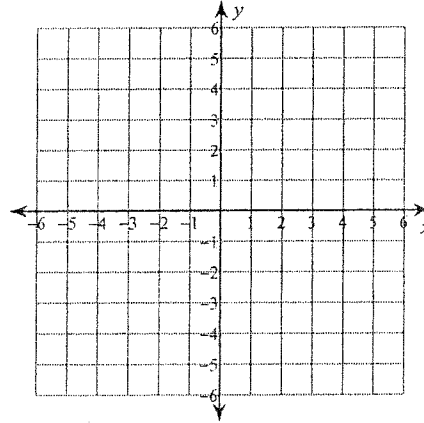
2)  $10x - 3y = -15$



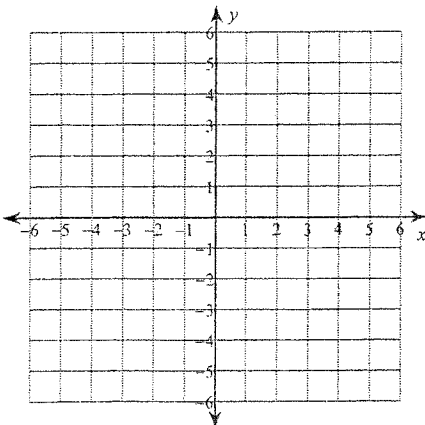
3)  $x + y = -3$



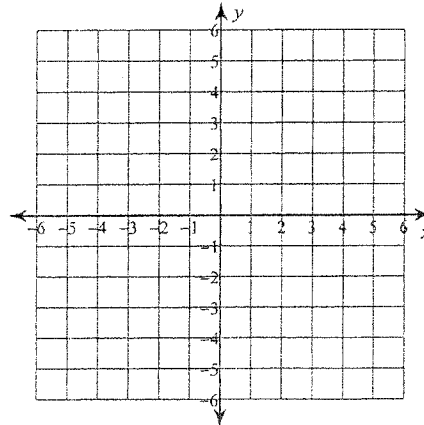
4)  $x = 5$



5)  $7x + 2y = -10$



6)  $x - 2y = -6$

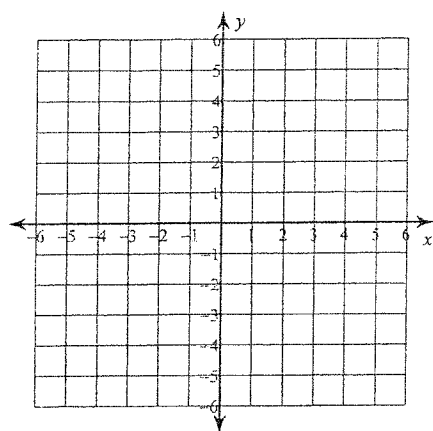


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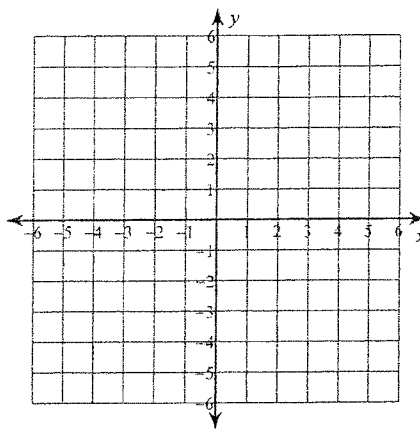
Graphing Lines in Standard Form



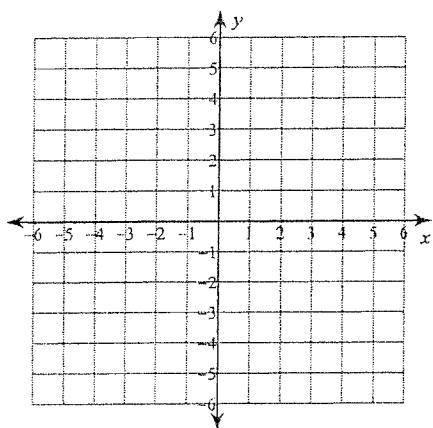
7)  $x + y = 0$



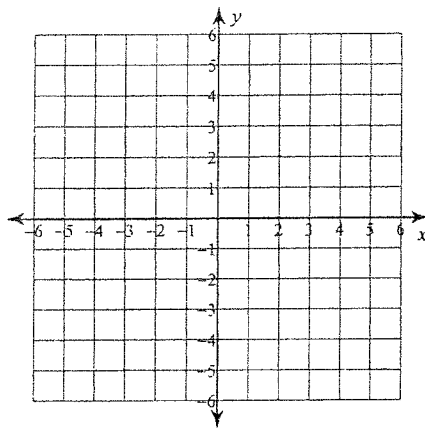
8)  $9x + y = 4$



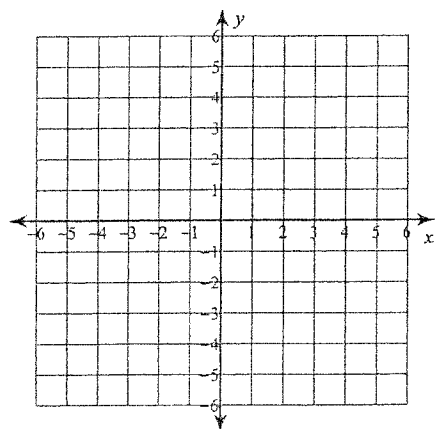
9)  $y = 5$



10)  $x + 4y = -12$



11)  $x - 3y = 3$



12)  $x + y = 4$

