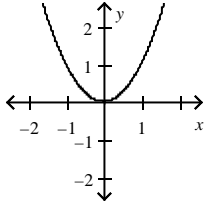


# Graphing Linear Functions Study Guide

Show work for all questions. You may need to use a separate sheet of paper.

1. For each of the following, state whether the function is LINEAR or NONLINEAR. Then, **EXPLAIN** how you know for each question.

a)  $\frac{2}{x} - 3y = 4$



b)

x	-5	-1	3	7
y	6	4	2	0

c)

d)  $\{(-4,2), (-2,1), (0,0), (2,-1)\}$

2. Circle **ALL** of the LINEAR functions from the list below.

a)  $y = \sqrt{2x} - 4$

b)  $y = 3x - 7$

c)  $-\frac{y}{2} - \frac{x}{4} = 17$

d)  $y^2 - x = 3$

e)  $4 = y(x - y)$

f)  $3x - 8y = 17$

g)  $|y + 2| = x$

h)  $2x - \frac{7}{y} = 8$

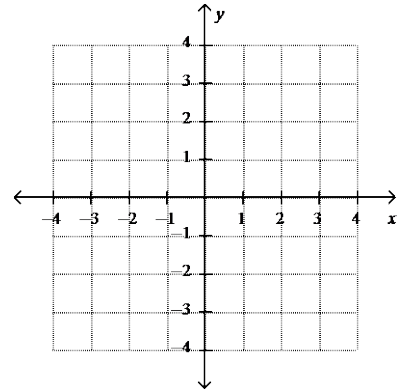
3. Which of the following statements are TRUE about the equation:  $x = 4$ ?

- A) the line is parallel to the x-axis
- B) the line is parallel to the y-axis
- C)  $m = 0$
- D)  $m$  is undefined
- E)  $b = 4$
- F)  $b = 0$

4. Find the x- and y-intercepts for the following equation. Then, graph the equation.

$$-3x + 6y = 12$$

x-intercept \_\_\_\_\_ y-intercept \_\_\_\_\_



5. Rewrite the following equations in *slope-intercept form*. Then, identify the slope and y-intercept.

a)  $-7x + 4y = 8$

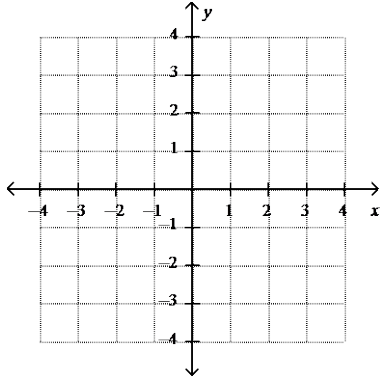
Equation: \_\_\_\_\_  
 m = \_\_\_\_\_ b = \_\_\_\_\_

b)  $4x - 2y = 6$

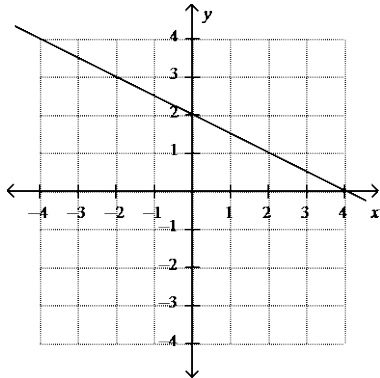
Equation: \_\_\_\_\_  
 m = \_\_\_\_\_ b = \_\_\_\_\_

6. Graph the following equation.

$$y = -\frac{2}{3}x + 1$$

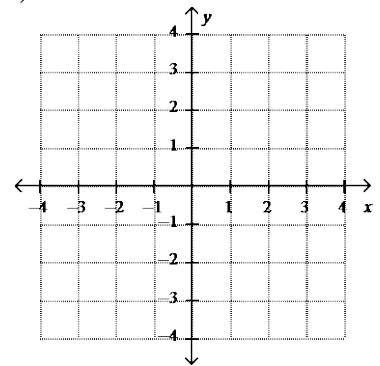


7. Identify the slope, y-intercept, and x-intercept of the graph below.

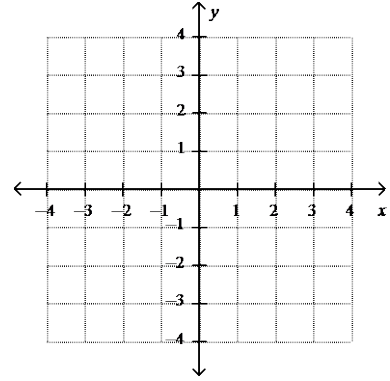


Slope: \_\_\_\_\_ Y-int: \_\_\_\_\_ x-int \_\_\_\_\_

8. Graph a line with a slope of  $\frac{2}{3}$  and contains the point  $(-3, -2)$ .

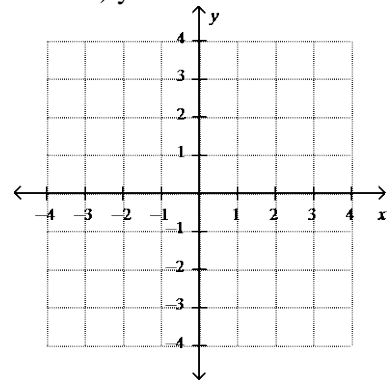


9. Graph a line with a slope of  $-4$  and a y-intercept of  $2$ .

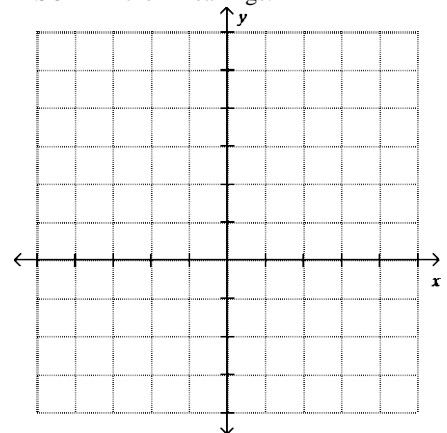


10. Use the graph below to graph the following equations. Label each equation.

- a)  $x = -3$       b)  $y = 2$



11. Janet is babysitting to raise money for college. She charges a fixed fee of \$15 and an additional \$5 per hour spent babysitting. The equation  $y = 5x + 15$  describes her situation. Graph Janet's money earned as a function of time on the graph provided. Make sure to label your x- and y-axis appropriately. Then, identify the slope and y-intercept of the line and DESCRIBE their meanings.



a) Slope = \_\_\_\_\_ and represents

b) Y-int = \_\_\_\_\_ and represents

## Graphing Linear Functions Study Guide Answer Section

### SHORT ANSWER

1. ANS:

A) Nonlinear, x in DENOMINATOR

B) Nonlinear, graph is not a straight line

C) Linear, x changes by +4 each time and y changes by -2 each time

D) Linear, x changes by +2 each time and y changes by -1 each time

PTS: 1

2. ANS:

BCF

PTS: 1

3. ANS:

BD

PTS: 1

4. ANS:

(-4,0)

(0,2)

PTS: 1

5. ANS:

a)  $m = 7/4$

$b = 2$

$$y = \frac{7}{4}x + 2$$

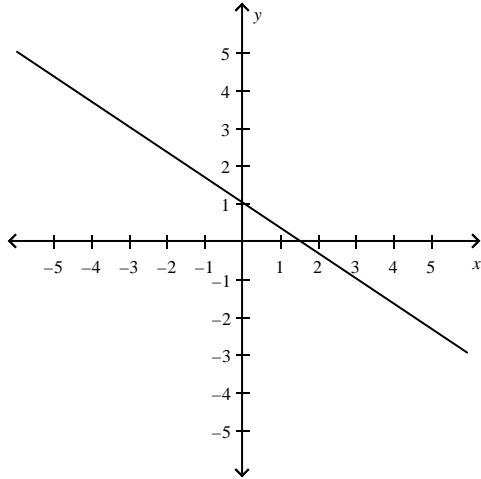
b)  $m = 2$

$b = -3$

$$y = 2x - 3$$

PTS: 1

6. ANS:



PTS: 1

7. ANS:

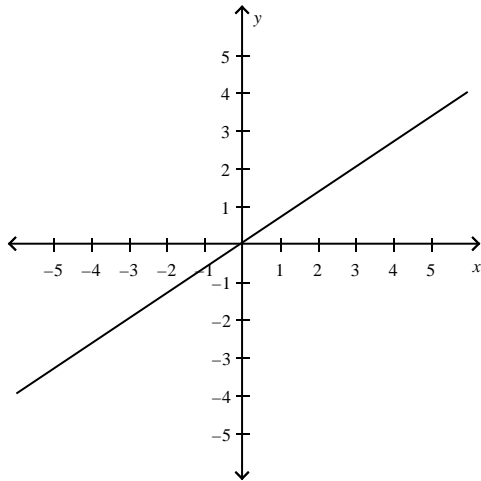
slope =  $-\frac{1}{2}$

y-int = (0,2)

x-int: (4,0)

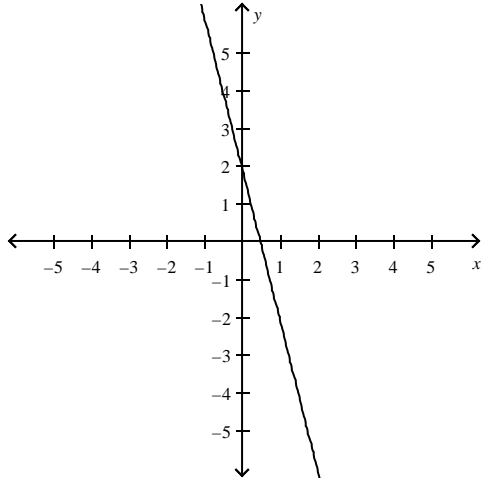
PTS: 1

8. ANS:



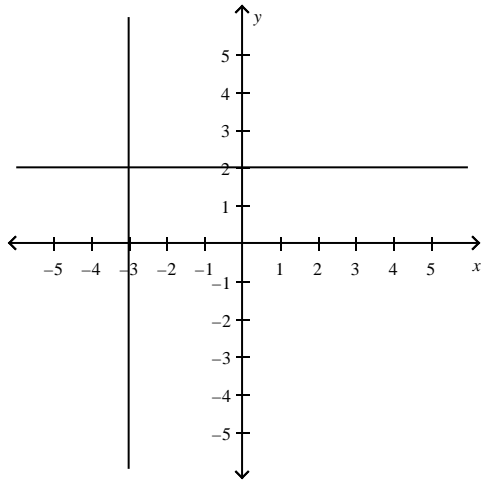
PTS: 1

9. ANS:



PTS: 1

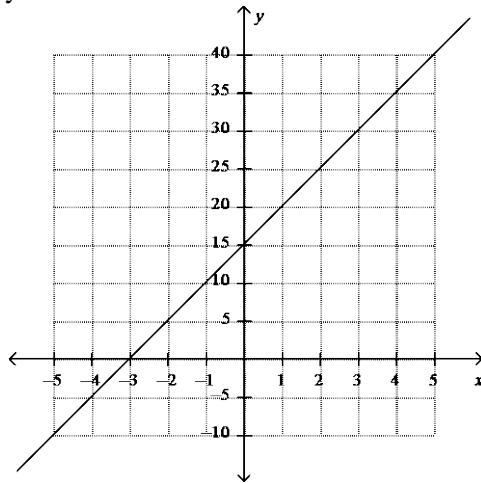
10. ANS:



PTS: 1

11. ANS:

$$y = 5x + 15$$



Slope = 5 and represents the amount of money she earns for each hour worked

Y-int = 15 and represents how much money she charges no matter how many hours worked (or her fixed fee)

PTS: 1