

**EVALUATE**

1 What is the value of  $-m(n - p)$  when  $m = -2$ ,  $n = 4$ , and  $p = -1$ ?

2 What is the value of  $-x^2 - y^2 + 4$  when  $x = -3$  and  $y = -2$ ?

**TRANSLATE**

3 The Spanish Club is traveling to Newport News for a Spanish Festival. There are 30 students going on the trip. Each vehicle carries  $x$  number of people. What expression could be used to determine the number of vehicles needed to transport the students?

4 The square of a number increased by four times the number.

5 Five less than one-half a number.

6 The sum of two numbers *is less than* 80.

7 The difference of two numbers *is more than* 9.

**PROPERTIES**

8 Justify each step used in solving this equation.

$$2(x + 1) + 3x = 17 \quad \text{Given}$$

$$2x + 2 + 3x = 17 \quad \underline{\hspace{2cm}}$$

$$2x + 3x + 2 = 17 \quad \underline{\hspace{2cm}}$$

$$(2x + 3x) + 2 = 17 \quad \underline{\hspace{2cm}}$$

$$5x + 2 = 17 \quad \underline{\hspace{2cm}}$$

$$5x = 15 \quad \underline{\hspace{2cm}}$$

$$x = 3 \quad \underline{\hspace{2cm}}$$

9 Justify each step used in solving this inequality.

$$8x - 1 < 15 \quad \text{Given}$$

$$8x < 16 \quad \underline{\hspace{2cm}}$$

$$x < 2 \quad \underline{\hspace{2cm}}$$

10 Identify the property being illustrated.

a.)  $(\frac{1}{5})1 = \frac{1}{5}$

b.)  $5x + 0 = 5x$

c.)  $-9x + 9x = 0$

d.)  $6(\frac{1}{6}) = 1$

e.) If  $x + y = z$ , then  $z = x + y$ .

f.) If  $a = b$  and  $b = c$ , then  $a = c$ .

g.)  $2x(0) = 0$

**SOLVE EQUATIONS**

11 What is the solution to  $7 - 3x = 19$ ?

12 What value of  $n$  satisfies the equation shown?

$$3(m + 4) = 6(m - 3)$$

13 What is the solution to the following equation?  $9x + 1 = -6 + 2x$

- 14 Which of the following is NOT a solution to  
 $a - 5 = 2a + 4a - 10$

A  $a = 2$   
B  $a = -1$   
C  $a = 1$   
D  $a = \frac{1}{2}$

- 15 What is the solution to the following equation?  $14 - \frac{1}{3}t = 16$

A  $t = -6$   
B  $t = 6$   
C  $t = 9$   
D  $t = -90$

### SOLVE LITERAL EQUATIONS

- 16 Solve  $a = bcd$  for  $c$

- 17 Solve  $x = y^2z$  for  $z$

### SOLVE INEQUALITIES

- 18 What is the solution to the following inequality? Graph the solution on a number line.

$$8x - 3 \geq x + 11$$

- 19 What is the solution to the following inequality? Graph the solution on a number line.

$$-7 > 3x + 5$$

- 20 What is the solution to the following inequality? Graph the solution on a number line.

$$-6x + 5 < 23$$

- 21 What is the solution to the following inequality? Graph the solution on a number line.

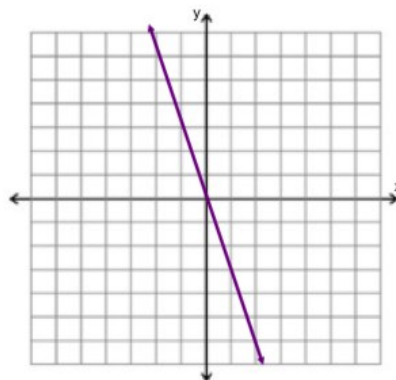
$$3x + 1 \leq x - 7$$

- 22 What is the solution to the following inequality? Graph the solution on a number line.

$$5(x - 4) > 15$$

### SLOPE

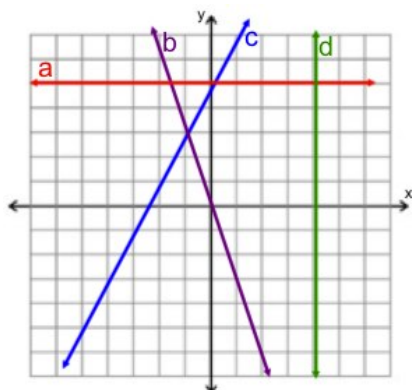
- 23 What is the slope of the line graphed below?



- 24 What is the slope of the line that contains points  $(-3, 3)$  and  $(9, -1)$ ?

A  $-\frac{1}{3}$   
B  $\frac{1}{3}$   
C  $3$   
D  $-3$

- 25 Identify the slope of each line graphed below?



line a \_\_\_\_\_ line b \_\_\_\_\_

line c \_\_\_\_\_ line d \_\_\_\_\_

- 26 What is the slope of the line that passes through (5, 1) and (5, -6)?

A 0  
B Undefined  
C -7  
D  $\frac{1}{7}$

- 27 What is the slope of the line that goes through (-4, 3) and (2, 3)?

A 0  
B Undefined  
C -6  
D  $\frac{1}{6}$

- 28 What is the slope of  $y = -\frac{1}{2}x - \frac{1}{4}$  ?

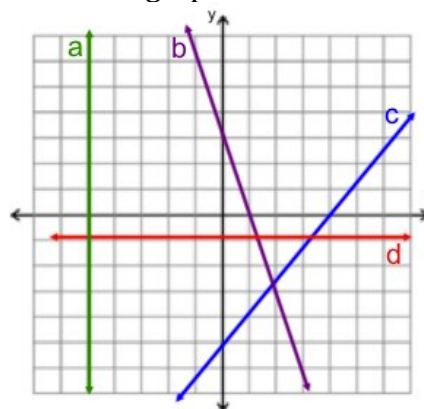
m = \_\_\_\_\_

- 29 What is the slope of  $6x + y = 9$ ?

m = \_\_\_\_\_

## GRAPHING & WRITING Linear EQUATIONS

- 30 Given the graphs below:



- a.) What is the equation of line a?

- b.) What is the equation of line b?

- c.) What is the equation of line c?

- d.) What is the equation of line d?

- e.) Identify the x- and y-intercepts of each line.

	x-intercept	y-intercept
Line a		
Line b		
Line c		
Line d		

- 31 What is the equation of a line with a slope of -3 and containing the point (-3, 15)?

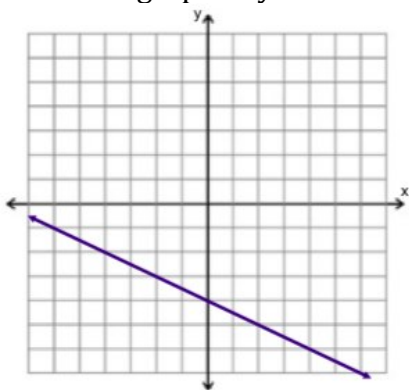
A  $y = 4x - 1$   
B  $y = -3x + 6$   
C  $y = -5x - 9$   
D  $y = -3x + 15$

32 What is the equation of a line with a slope of  $\frac{2}{5}$  and passes through  $(3, -2)$ ?

33 Which is an equation for the line that contains the points  $(4, 8)$  and  $(-3, -13)$ ?

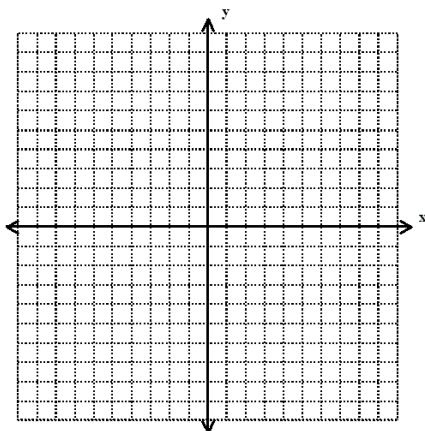
- A  $y = 4x + 8$
- B  $y = -4x + 3$
- C  $y = 3x - 4$
- D  $y = -3x - 13$

34 Given the graph of  $y = -\frac{1}{2}x - 4$



If this graph is shifted up 3 units, what will the resulting equation be?

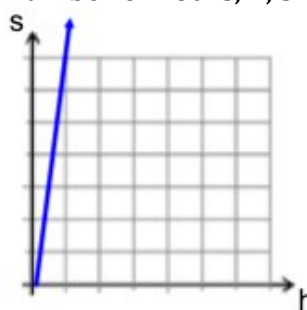
35 Graph  $3x - 2y = 10$



36 Which equation contains the following ordered pairs in the solution set?  
 $\{(-6, -2), (-3, -1), (3, 1)\}$

- A  $y = -\frac{1}{3}x$
- B  $y = \frac{1}{3}x$
- C  $y = 3x$
- D  $y = -3x$

37 Hannah works babysitting and is paid \$7.00 per hour. The graph below describes her salary,  $s$ , based on the number of hours,  $h$ , she works.



Which is the equation of the graph shown?

- A  $s = 7h$
- B  $s = \frac{7}{h}$
- C  $s = \frac{h}{7}$
- D  $s = 7 + h$

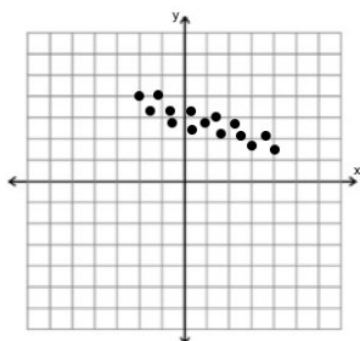
### SCATTERPLOTS/DATA PREDICTIONS

38 Which equation represents the data in the table below?

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

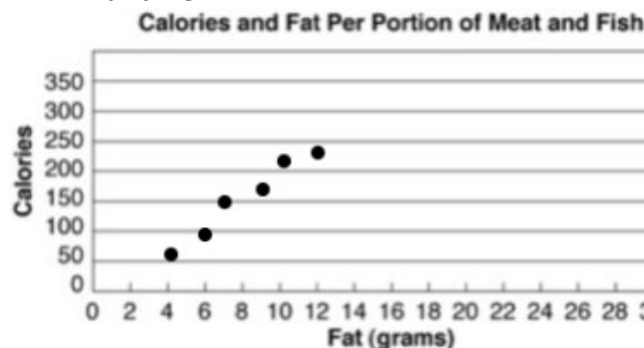
- A  $y = \frac{-x}{2} - 4$
- B  $y = \frac{x}{3} + 2$
- C  $y = \frac{x}{4} + 1$
- D  $y = \frac{-x}{3} + 5$

- 39 Given the following scatterplot, what would be the equation of the line of best fit for this data?



- A  $y = 3x + 3$
- B  $y = -\frac{1}{3}x + 3$
- C  $y = -3x - 3$
- D  $y = -3x + 3$

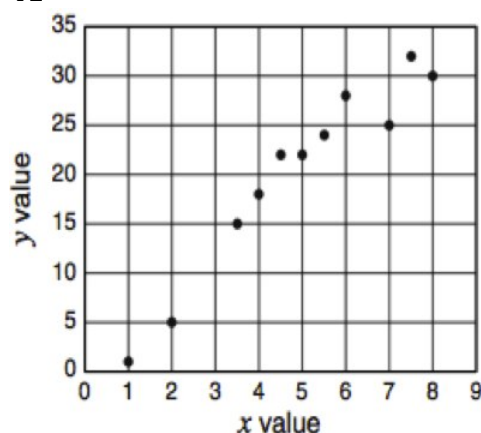
- 40 The scatterplot below shows the calories and fat per portion of meat and fish.



Using the line of best fit for the plot, which is the best prediction for the amount of calories if the fat is 16 grams?

- A 150
- B 200
- C 275
- D 400

41



Based on the scatter plot, which  $x$  value would best match  $y = 12$ ?

- A 8
- B 11
- C 14
- D 17

42

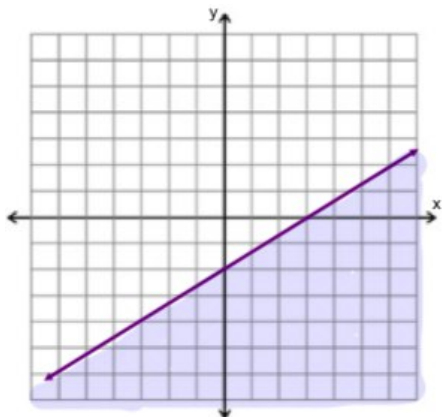
The chart shows how the wholesale price of an item,  $p$ , depends on the cost of the materials needed to produce the item,  $m$ . Which equation represents this linear relationship?

$m$	\$0.50	\$1.00	\$1.50	\$2.00
$p$	\$4.00	\$5.00	\$6.00	\$7.00

- A  $p = m + 3.5$
- B  $p = 2m + 3$
- C  $p = 3m + 2.5$
- D  $p = 4m + 2$

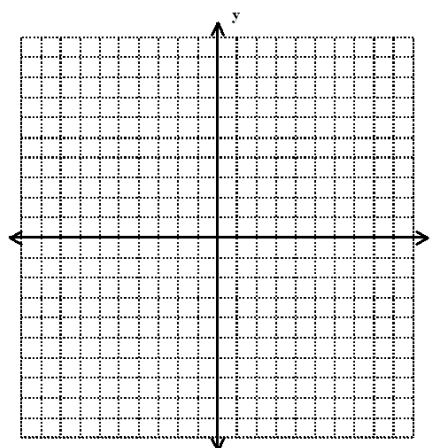
## GRAPHING LINEAR INEQUALITIES

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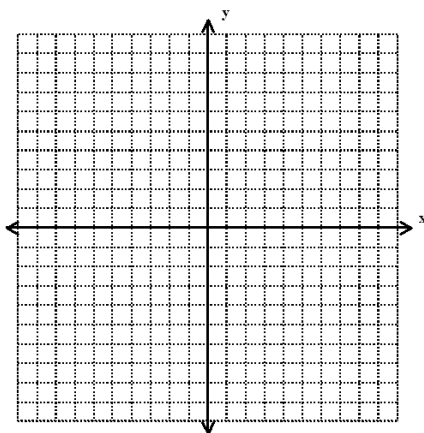


Write a linear inequality for the graph above.

46 Graph  $\begin{cases} y < -4x + 5 \\ y \geq 2x + 1 \end{cases}$

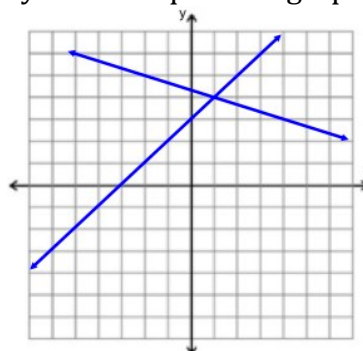


44 Graph  $4x - 3y < 9$



## SYSTEMS OF EQUATIONS

47 Which is most likely the solution to the system of equations graphed below?

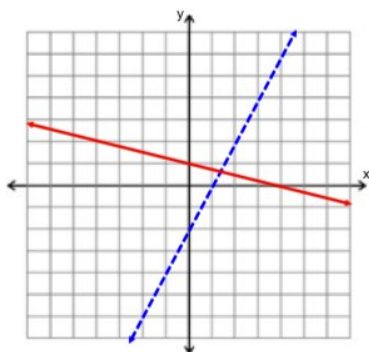


Solution (     ,     )

## SYSTEMS OF INEQUALITIES

45 Identify the solution region to the system of inequalities graphed below.

$$\begin{cases} y < 2x - 2 \\ y \geq -\frac{1}{4}x + 1 \end{cases}$$



48 What is the solution to this system of equations below?

$$\begin{cases} 3x + 2y = 8 \\ 2x - y = -11 \end{cases}$$

- A (-5, 1)
- B (2, 1)
- C (2, -7)
- D (-2, 7)

- 49 What is the x-coordinate for the solution to the following system of equations?

$$\begin{cases} 3x + y = 1 \\ 2x - y = -6 \end{cases} \quad x = \underline{\hspace{2cm}}$$

- 50 Courtney has 22 coins, all dimes and quarters. The value of the 42 coins is \$3.70. How many quarters does Courtney have?