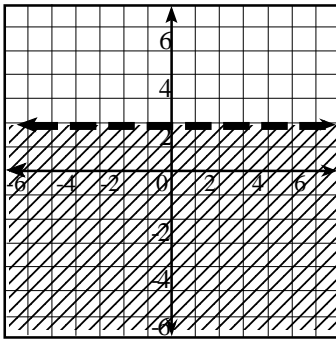1. What is the value of $y$ when $x = -2$?

$$y = -4x + 1$$

A   1

B  -1

C  $\frac{3}{2}$

D  -2

2. What is the slope of the line $x + 3y = 5$ ?

3. Which inequality represents the graph below?



A  $x \geq 2$
B  $y \geq 2$
C  $x < 2$
D  $y < 2$

4. What is the slope of the line that passes through points (-2, 4) and (-4, 5).

5. Which equation represents eight times the quantity $x + 2$ is equal to 40?

A  $8x + 2 = 40$
B  $(x + 2)\ 40 = 8$
C  $8 + x + 2 = 40$
D  $8(x+2) = 40$

6. What is the slope of a line that is parallel to the line $-3y = 6x - 3$?

A  2

B  -2

C  $\frac{1}{2}$

D  $-\frac{1}{2}$

7. Simplify the following:
$$(2x^2yz^4)^3$$

A.  $2x^5y^3z^{12}$

B.  $6x^5y^3z^7$

C.  $5x^6y^3z^{12}$

D.  $8x^6y^3z^{12}$

8. Evaluate the expression $|x - 8| + 2a$
   if $x = 5$ and $a = 3$.

9. Which of the following describes the slope of a line parallel to the y-axis?

   A. positive slope
   B. negative slope
   C. zero slope
   D. undefined slope

10. Solve the system of equations below:

$$3x - y = 8$$
$$2x + y = -3$$

1. If $a - b = 4$ and $a + b = 12$, what is the value of $a$?

    A. 4
    B. 8
    C. 12
    D. 16

2. What is the slope of the line $5x - 2y = 12$ ?

3. Which is the equation for the line passing through

   the point (-3,2) and having a slope of $\frac{1}{3}$?

    A. $y = -3x+2$

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

    C. $y = 2x-3$

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

4. If, across the nation, two out of five people drink
   Zippy Soda Pop, how many would be expected to
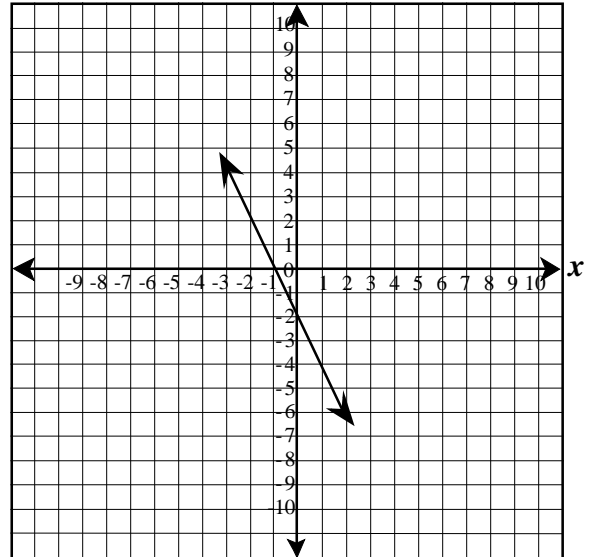   drink it in a city of 45,000 people?

    A. 1,800
    B. 9,000
    C. 18,000
    D. 90,000

5. Evaluate the following expression:

   $\dfrac{4x}{3x+2y}$ when $x$ is -3 and $y$ is 4

6. Given the inequality $5y + 5 < 40$, solve for $y$.

7. Write the equation of the following line:



8. New City had a population of 25,000 in the
year 2000. Its population is increasing at a rate of
5000 people per year. At this rate, in what year
will the population be tripled?

    A. 2005
    B. 2010
    C. 2015
    D. 2030

9. Factor the following quadratic equation:

$$2x^2 - 17x - 19 = 0$$

10. Simplify the expression $(6 + y)(-12)$.

    A. $-72 - 12y$
    B. $72 - 12y$
    C. $-6 - 12y$
    D. $-6 + 12y$

1. Solve the system of linear equations.

$$3x - y = 7$$
$$2x + y = 8$$

2. Which of the following describes the slope of a line parallel to the y-axis?

   A. positive slope
   B. negative slope
   C. zero slope
   D. undefined slope

3. Subtract the following polynomials:

   $(-4x^2+5x-3) - (-6x^2+2x-7)$

4. Kayla earns a salary of $240 per week. She also receives a 2% bonus on her total sales, $x$. Write an equation which can be used to find Kayla's total earnings, $T$, for one whole week.
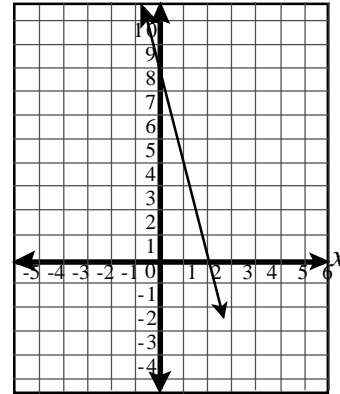
   A. $T = 240 - .02x$
   B. $T = 240 + 2x$
   C. $T = 240 + .02x$
   D. $T = (240 + .02)x$

5. If 0.000047 is expressed in the form $4.7 \times 10^n$, what is the value of $n$?

6. A straight line on a graph passes through the points (3,2) and (4,4). Which of these points lies on the line?

   A. (1,1)

   B. (2,4)

   C. (5,6)

   D. (6,5)

7. What is the slope of the line in the graph below?



   A. 4

   B. $\dfrac{1}{4}$

   C. $-\dfrac{1}{4}$

   D. -4

8. Which is the equation for the line passing through the point (-3,2) and having a slope of $\dfrac{1}{3}$?

9. Which range of values contains the solution to the inequality $-\dfrac{3}{4}x > 15$?

   A. $x < -20$
   B. $x > -20$
   C. $x < 20$
   D. $x > 20$

10. Rick has a picture that measures 3 inches in width and 5 inches in length. If Rick enlarges the picture to make a poster that measures 2 feet in width, how long will the poster be?

1. Which of the following describes the slope of a line parallel to the x-axis?

    A. positive slope
    B. negative slope
    C. zero slope
    D. undefined slope

2. Add the following polynomials:

$$(-2x^2+5x-3) + (-4x^2+2x+3)$$

3. The number of red marbles that Terry has is shown by the expression $3b+5$, with $b$ representing the number of blue marbles. If Terry has 9 blue marbles, how many red marbles does he have?

A. 8
B. 17
C. 22
D. 32

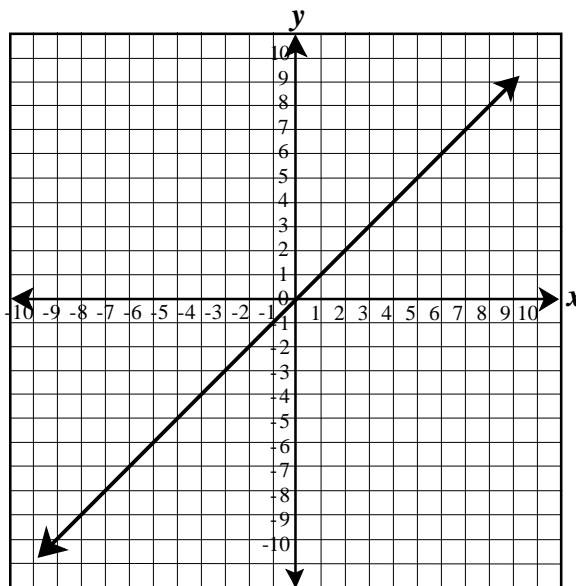4. If 0.000047 is expressed in the form $4.7 \times 10^n$, what is the value of $n$?

A. -7
B. -5
C. -1
D. 5

5. Evaluate the following expression:

$$\sqrt{x} - 3 \quad \text{if } x = 49$$

6. What is the slope of the line passing through points (-1,4) and (3,2)?

7. The graph of the function $y = x$ is shown below.



If the line is shifted 3 units up, which equation will best describe the new line?

A. $y = x +3$
B. $y = 2(x+3)$
C. $y = 3x$
D. $y = x-3$

8. The point (-4, -3) is located in which quadrant?

A. I
B. II
C. III
D. IV

9. What is the solution to the equation

$$2(2x-1) - 3x = -5?$$

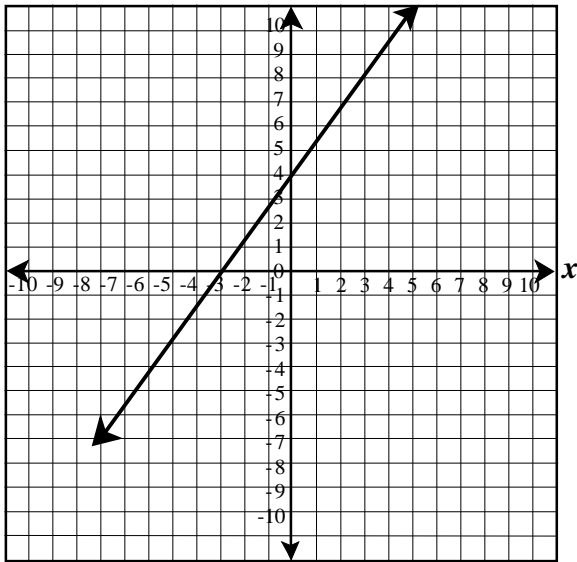10. Given the equation $5x - 3y - 15 = 0$, find the $x$ and $y$ intercepts.

A. (0,3) (-5,0)
B. (5,0) (0,-3)
C. (0,-5) (3,0)
D. (5,0) (0,3)

1. What is the slope of the line below?



2. Which equation describes a line parallel to the graph of $y = 3x - 4$?

   A. $y = -3x + 6$

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

   C. $y = 3x + 8$

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

3. Solve for $x$.

   $-3x + 7 > 4$

4. The cross-country team ran 8.3 kilometers in 36.5 minutes during their workout. Let $r$ be the rate of speed in kilometers per minute. Which equation models this problem?

   A. $36.5r = 8.3$

   B. $8.3r = 36.5$
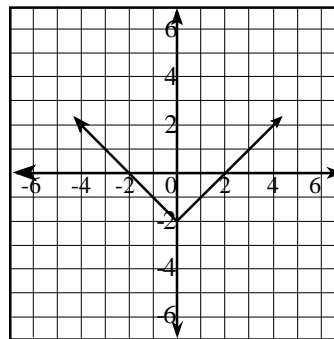
   C. $r = (36.5)(8.3)$

   D. $\frac{r}{36.5} = 8.3$

5. Solve for $x$ in the equation $-3(2x - 4) + 3^2 = 12$.

6. Which equation describes the data in the table?

| $x$ | $y$ |
|-----|-----|
| -2 | 5 |
| -1 | 3 |
| 0 | 1 |
| 1 | -1 |

   A. $y = \frac{1}{2}x + 6$
   B. $y = x + 4$
   C. $y = -2x + 1$
   D. $y = 2x - 3$

7. Write the equation for the following graph:



8. Taryn scored 20 points in the second basketball game of the season. That was 4 more than twice as many points as the first game. How many points did she score in the first game?

   A. 8
   B. 10
   C. 12
   D. 36

9. The side of a square is $n$ meters long. The area of the square is 36 square meters. Write an equation to find the length of one side of the square?

10. If a coin is tossed 4 times and the first 3 tosses were heads, what is the probability that the fourth toss will also be heads?

1. What is the slope of the line $y = -3x + 4$ ?

2. The graph below shows the heights in inches and the shoe size of 10 high school students.

**Height and Shoe Size**
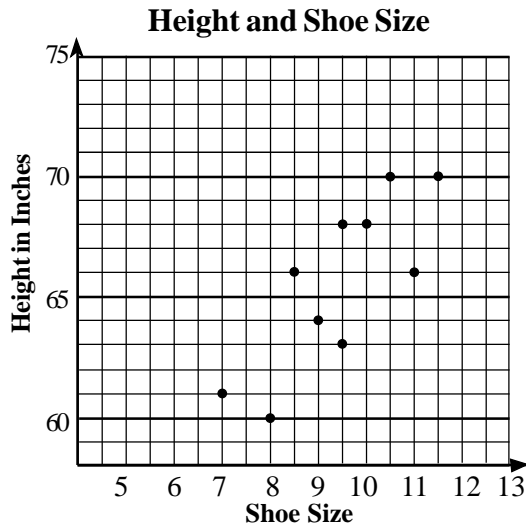


Using the data from the graph, what is the best prediction of the shoe size of a student who is 71 inches?

    A. Between 6 and 7
    B. Between 8 and 9
    C. Between 10 and 11
    D. Between 12 and 13

3. Solve the system of equations below.

$$4x - y = 12$$
$$3x + y = 2$$

4. Matt has six more than four times as many CDs as his brother, Justin. If Matt has fewer than 50 CDs, which expression shows how many CDs ($j$) Justin has?

A. $j = 11$
B. $j < 11$
C. $j < 11$
D. $j > 11$

5. Whitney opened a savings account with $350 when she was 10 years old. The bank pays 5% interest annually. She recently was notified that she has earned a total of $70 in interest.
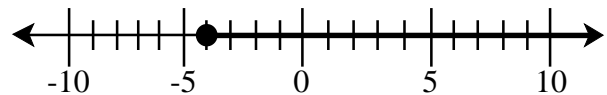
How old is Whitney now?

6. A rectangular picture is pasted to a sheet of white paper as shown.
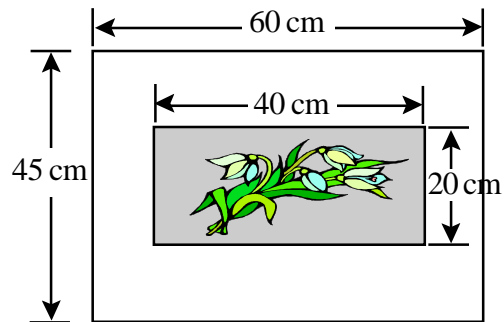


What is the area of the white paper not covered by the picture?
    A. 165 cm²
    B. 500 cm²
    C. 1900 cm²
    D. 2700 cm²

7. Write the inequality represented by the number line below.



8. A rectangle has a length of $2n$ and a width of $3n+2$. Which expression describes the area of the rectangle?
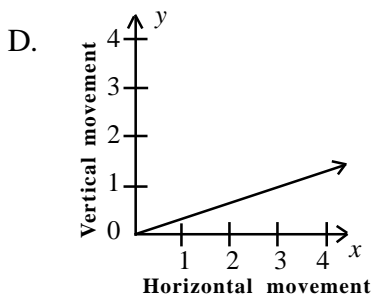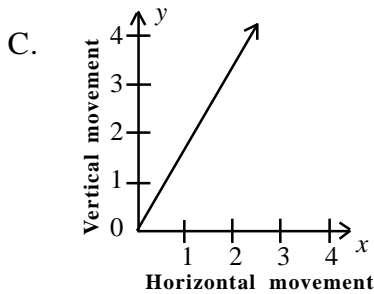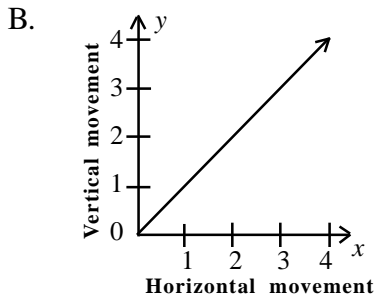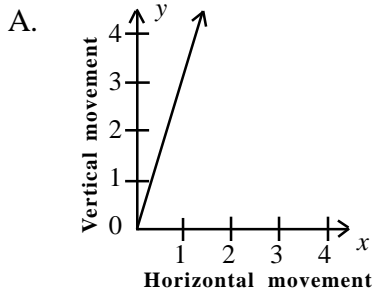
A. $5n+2$
B. $6n^2+2$
C. $6n+2$
D. $6n^2+4n$

**OVER** ➡

9. Kyle walked up a hill. For every foot he climbed vertically, he advanced three feet horizontally. Which graph best shows Kyle's position as he walked up the hill?

A.

B.

C.

D.

10. Kim's specialty shop makes baseball caps to sell. Kim graphed the cost and the revenue she received from the sales of the caps in the graph below.
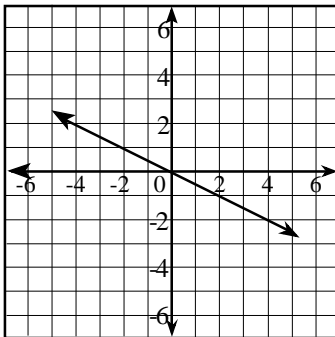
**Kim's Sales Analysis**
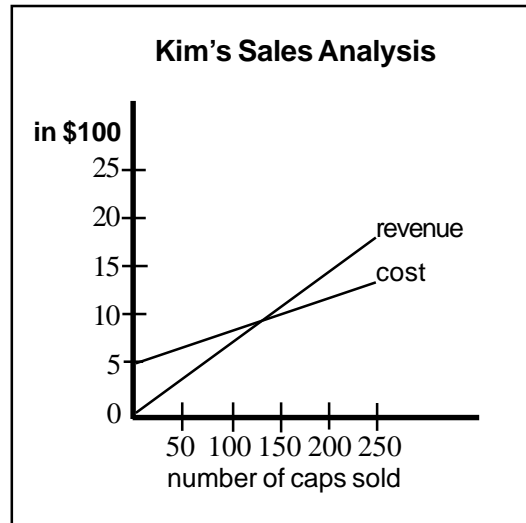
Approximately how much did it cost to produce 50 caps?

A. $5
B. $25
C. $250
D. $600

1.  What is the slope of the line below?



2.  Given the system of the following linear equations:

$$3x-y=8$$
$$2x+y=-3$$

What is the first step in eliminating the variable $y$?

A.  Add the two equations
B.  Multiply the two equations
C.  Multiply the second equation by -3
D.  Rewrite the equations so they both equal zero

3.  Evaluate $y^0$.

4.  The perimeter of a rectangular garden is 64 feet. The length is 6 feet more than twice the width. Which system of equation will determine the length, $l$, and the width, $w$, of the garden?

A.  $2l + w = 64$
    $2w + l = 6$
B.  $2l + 2w = 64$
    $l = 6 - 2w$
C.  $2l + 2w = 64$
    $l = 2w + 6$
D.  $2l + 2w = 64$
    $w = 2l - 6$

5.  Evaluate the following expression:

$$\frac{4x}{3x+2y} \quad \text{when } x \text{ is -3 and } y \text{ is 4}$$

6.  The area of a rectangular flag is 24 square feet. The length of the flag is 2 feet longer than the width. What are the dimensions of the flag?

A.  2 ft. by 12 ft.
B.  3 ft. by 8 ft.
C.  4 ft. by 6 ft.
D.  5 ft. by 7 ft.

7.  What is the slope of the line passing through points (-3, 2) and (-5, 3)?

8.  Subtract the following polynomials:

$$(-3x^2 + 2x -4) - (4x^2 + 3x + 2)$$

9.  If .0000084 is expressed in the form $8.4 \times 10^n$, what is the value of $n$?

A.  -6
B.  -5
C.  5
D.  6

10. Which of the following equations is parallel to the line $y = -4x + 2$?

A.  $y = 4x - 2$
B.  $y = \frac{1}{4}x + 2$
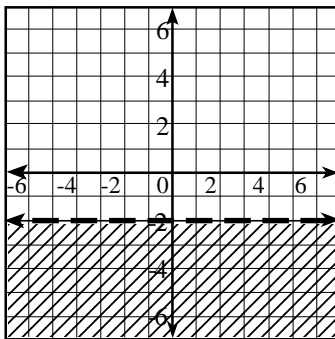C.  $y = -4x + 6$
D.  $y = \frac{1}{4}x - 6$

1.  What is the value of $y$ in the equation below
    when $x = -4$?

    $$x - 2y = 2$$

A.  1

B.  -1

C.  $\dfrac{3}{2}$

D. -3

2.  What is the slope of the line $y = -3x + 4$?

3. Which inequality represents the graph below?



A  $x \geq -2$
B  $y \geq -2$
C  $x < -2$
D  $y < -2$

4.  What is the slope of the line that passes through
points (-2, 4) and (-4, 5).

5.  Which equation represents six times the quantity
$x + 3$ is equal to 40?

A  $6x + 3 = 40$
B  $(x + 3)\,40 = 6$
C  $6 + x + 3 = 40$
D  $6(x+3) = 40$

6.  What is the slope of a line that is parallel to the
line $-3y = 6x - 3$?

A  2

B  -2

C  $\dfrac{1}{2}$

D  $-\dfrac{1}{2}$

7.  Simplify the following:

    $$(2x^2yz^4)^3$$

A.  $2x^5y^3z^{12}$

B.  $6x^5y^3z^7$

C.  $5x^6y^3z^{12}$

D.  $8x^6y^3z^{12}$

8.  Evaluate the expression $\left| x - 6 \right| + 2a$
    if $x = 3$ and $a = -2$.

9.  Which of the following describes the slope of a
    line perpendicular to the y-axis?

    A.  positive slope
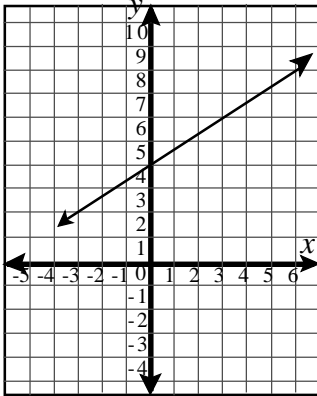    B.  negative slope
    C.  zero slope
    D.  undefined slope

10.  Solve the system of equations below:

$$3x - y = 8$$
$$2x + y = -3$$

1. Write the equation of the line shown below.



2. Go cart rides cost $40 plus $2.50 per hour.
If $h$ is the number of hours of a ride, and $c$ is the cost in dollars, which equation represents this situation?

A   $c = 40 + 20h$
B   $c = 40 + 2.50h$
C   $c = 2.50 + 40h$
D   $c = h (40 + 2.50)$

3. What is the value of $y = \dfrac{2x}{3x + 2}$ when $x = -2$?

4. What is the slope of the line
$x + 3y = 5$?

A   -1

B   -3

C   $\dfrac{1}{3}$

D   $-\dfrac{1}{3}$

5. What is the slope of the line that is passes through (3,5) and (4, 2)?

6. Solve the system of linear equations:

$$9y + 3x = 18$$
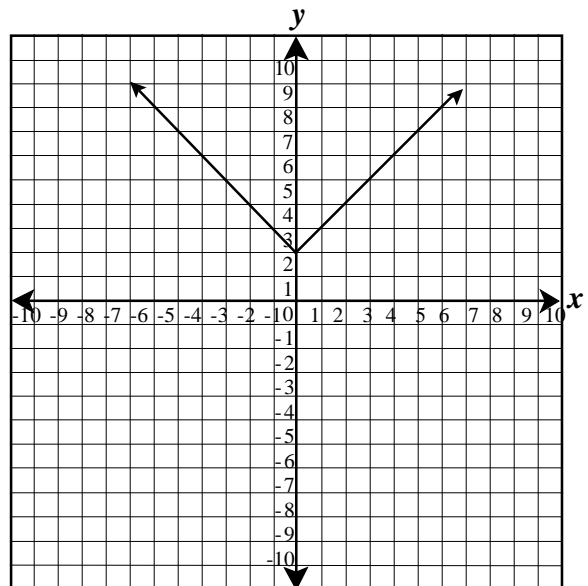$$7y - 3x = -2$$

7. Evaluate $y^0$.

A   -1
B   0
C   1
D   $y$

8. Find the difference:

$(-5u^2 + 3u + 7) - (2u^2 - u + 1)$

9. Which of the following relations is a function?

A   $\{(3, -1), (5, 4), (2, -1), (5, 0)\}$
B   $\{(-3, 5), (0, 2), (-1, 0), (2, 4)\}$
C   $\{(0, -5), (-6, 4), (3, 1), (0, 0)\}$
D   $\{(1, 1), (1, 2), (1, 3), (1, 4)\}$

10. Write the equation of the graph below.

1. Solve the system of linear equations.

$$4x - y = 9$$
$$2x + y = 9$$

2. Which of the following describes the slope of a line parallel to the x-axis?

   A  positive slope
   B  negative slope
   C  zero slope
   D  undefined slope

3. Add the following polynomials:

$$(-2x^2+5x-3) + (-5x^2+2x-6)$$

4. Maria works at a furniture store.  She earns a base slaray of $400 per week ($w$).  In addition, she earns a 15% commission on all sales ($s$).  Which expression could be used to find how much money she earns over a given number of weeks?

A  $400w + 0.15s$
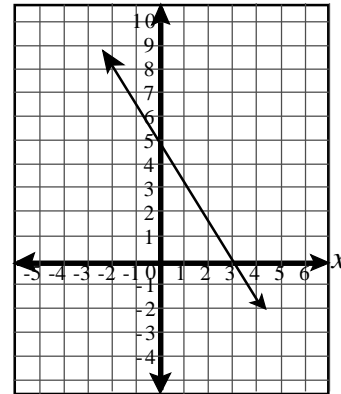B  $400w + 15s$
C  $s(400 + 0.15w)$
D  $w(400 + 0.15s)$

5. What is the equation of the graph below?
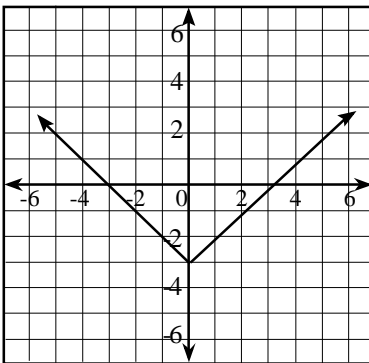


A  $y = x - 3$
B  $y = |x| - 3$
C  $y = -3x$
D  $y = |-3x|$

6. If 0.0000038 is expressed in the form $3.8 \times 10^n$, what is the value of $n$?

7. What is the slope of the line in the graph below?



A  5

B  $\dfrac{5}{3}$

C  -5

D  $-\dfrac{5}{3}$

8. Which is the equation for the line passing through the point (6, -2) and having a slope of $\dfrac{2}{3}$?

9. Which range of values contains the solution to the inequality $-\dfrac{3}{4}x > 15$?

A  $x < -20$
B  $x > -20$
C  $x < 20$
D  $x > 20$

10. Adam is graphing a line on a coordinate plane.  Two of the points on Adam's line are (6, -5) and (3, -2).  What is the slope of the line that Adam is graphing?

1. What happens to the graph of $y = |x|$ when it is changed to $y = |x| - 2$?

A The graph shifts up two units
B The graph shifts down two units
C The graph shifts left two units
D The graph shifts right two units

2. What is the equation of the line that passes through points (-2, 2) and (1,-4)?

3. The product of a number cubed and 6 is 17. Which equation represents this phrase?

A $x^3 = \dfrac{6}{17}$
B $(x + 6)^3 = 17$
C $6^3 x = 17$
D $6x^3 = 17$

4. Look at the system of equations below.

$$6x - 7y = 20$$
$$-4x + 3y = -20$$

What is the y-value of the solution to this system?

5. Mary started a 12-week weight training program. At the beginning, she could lift 15 pounds. The program increased the amount she could lift by 2 pounds per week. Using a linear equation to describe Mary's weight program, what are the slope and the y-intercept?

A slope = 2
   y-intercept = 15
B slope = 7.5
   y-intercept = 2
C slope = 12
   y-intercept = 30
D slope = 15
   y-intercept= 2

6. Which table displays a linear relationship between $x$ and $y$?

A

| x | y |
|---|---|
| 1 | 3 |
| 2 | 5 |
| 3 | 6 |

C

| x | y |
|---|---|
| 1 | 5 |
| 2 | 4 |
| 3 | 3 |

B

| x | y |
|---|---|
| 1 | 8 |
| 2 | 6 |
| 3 | 2 |

D

| x | y |
|---|---|
| 1 | 2 |
| 2 | 4 |
| 3 | 8 |

7. A line has a slope of -3 and passes through the point (1, -2). What is the equation of this line?
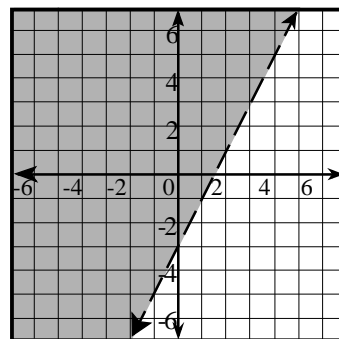
8. Add the following polynomials:

$$(3x^2 + 2x - 4) + (-5x^2 + 3x + 2)$$

9. What is the value of $|2x + 4|$ when $x = -3$?

A  -10
B  -2
C  10
D  2

10. The following is the graph of the solutions to an inequality.



Write the inequality.

1.  What is the equation of the line that passes through points (-2, 2) and (1,-4)?

2.  Find the value of $y$ when $x = -3$.

$$y = | x + 2 | - 3$$

A 2
B -2
C 4
D -4

3.  Let $x$ equal -9.  Solve for $y$.

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

4.  Melanie and Shawna were doing homework over the phone.  Shawna wanted to describe the expression 8 - 2$x$ to Melanie.  Which of these phrases correctly communicates this expression?

A Eight minus twice a number
B Two times a number minus eight
C Two times the difference of a number and eight
D Two time the difference of eight and a number

5. Which number line represents the inequality $x + 4 > 7$?

A 

B 

C 

D 
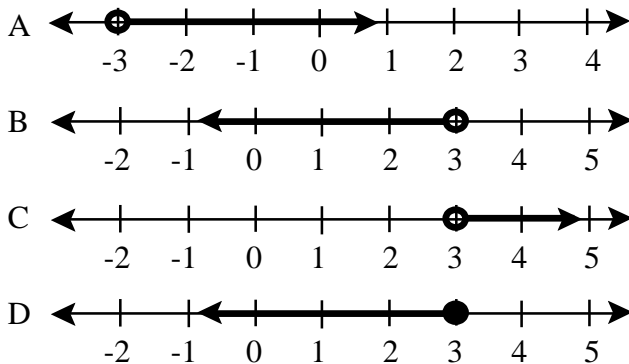
6.  Jose has to determine the value of x for an equation. The equation he has is $tp = \frac{4}{3}(x)(y)$.  Which equation below will correctly solve for $x$?

A $\; tp - \frac{4}{3} y = x$

B $\; \frac{4}{3} y - tp = x$

C $\; \frac{4tp}{3y} = x$

D $\; \frac{3tp}{4y} = x$

7.  Write an equation for a line perpendicular to...

$$y = -3x + 4$$

8.  Write the equation of a line with a slope of -3 that passes through (-2, 1).

9.  What is the slope of the line that is represented by the equation $6x + 2y = 10$?

10. Which table displays a linear relationship between $x$ and $y$?

A

| $x$ | $y$ |
|-----|-----|
| 1 | 5 |
| 2 | 7 |
| 3 | 8 |

B

| $x$ | $y$ |
|-----|-----|
| 1 | 4 |
| 2 | 8 |
| 3 | 12 |

C

| $x$ | $y$ |
|-----|-----|
| 1 | 8 |
| 2 | 6 |
| 3 | 2 |

D

| $x$ | $y$ |
|-----|-----|
| 1 | 9 |
| 2 | 6 |
| 3 | 2 |