1. Given the equation $x + 2y = 0$, which equation will form a system of linear equations without a solution?

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

B.
$$y = -\frac{1}{2}x + 4$$

C.
$$y = \frac{1}{2}x + 4$$

D.
$$y = \frac{1}{2}x$$

2. A student wants to determine the solution to the system of linear equations shown.

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

Which first step would allow the student to eliminate the x-terms?

A. Multiply $x + 3y = 12$ by 2.

B. Multiply $-2x + y = 3$ by 3.

C. Multiply $x + 3y = 12$ by -2.

D. Multiply $-2x + y = 3$ by -3.

3. The perimeter of a rectangle is 48 inches. The rectangle is twice as long as it is wide. What is the length of the rectangle?

   A. 8 inches

   B. 16 inches

   C. 24 inches

   D. 32 inches

4. Tickets to a school basketball game cost $4 for students and $7 for adults. At the end of the night, 168 tickets are sold for a total of $861. How many student tickets are sold?

   A. 29

   B. 42

   C. 63

   D. 105

5. The equation $d = -6t + 10$ represents the distance d, in miles, Ralph walks from the library to his house in t hours. His sister, Joan, leaves the library after Ralph. She rides her bicycle from the library to their house at a constant rate. The equation $d = 14t$ represents Joan's bicycle ride where d is the distance, in miles, and t is the time, in hours.

   After how many miles will Joan meet Ralph walking to their house?

A. 2.5 miles

B. 7 miles

C. 18 miles

D. 28 miles

6. Given the equations $x + y = 20$ and $x - y = 8$, which values of x and y satisfy both equations?

A. $x = 11$ and $y = 9$

B. $x = 9$ and $y = 11$

C. $x = 14$ and $y = 6$

D. $x = 6$ and $y = 14$

7. A theater charges $5 for student tickets and $7 for adult tickets. They sold 75 tickets for a total of $425. Which set of equations can be used to determine x, the number of student tickets sold, and y, the number of adult tickets sold?

A. $x - y = 75$
$5x + 7y = 425$

B. $x - y = 425$
$5x + 7y = 75$

C. $x + y = 75$
$5x + 7y = 425$

D. $x + y = 425$
$5x + 7y = 75$

8. Line *M* goes through the points $(-2, -8)$ and $(1, 1)$. Which pair of points lies on a straight line that intersects Line *M*?

A. $(-3, -2), (2, 6)$

B. $(-2, -1), (3, 14)$

C. $(0, 2), (1, 5)$

D. $(2, 1), (-5, -20)$

9. A medium pizza at Benny's Pizza costs $13.60 plus $2.50 for each topping. At Ricco's Pizza, a medium pizza costs $14.60 plus $2 for each topping. Which statement is **true** regarding the price of a medium pizza at the two pizza restaurants?
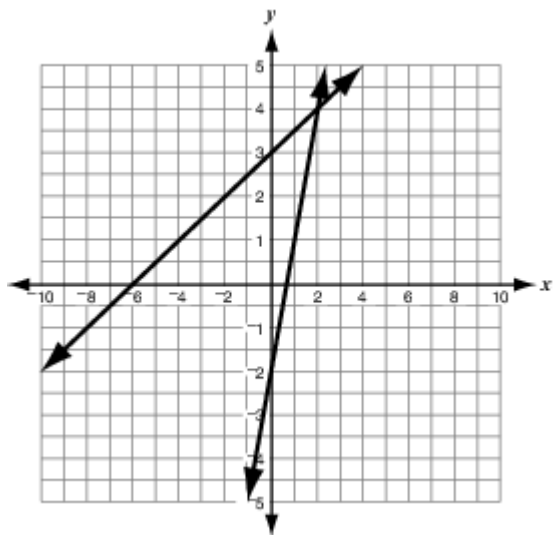
A. A pizza with one topping will cost more at Benny's Pizza.

B. A pizza with two toppings will cost more at Ricco's Pizza.

C. A pizza with three toppings will cost less at Benny's Pizza.

D. A pizza with four toppings will cost less at Ricco's Pizza.

10. Which ordered pair is the solution to the system of linear equations graphed below?

A. $(-6, 0)$

B. $(0, -2)$

C. $(0, 3)$

D. $(2, 4)$

11. Paul has a collection of nickels and dimes that has a total value of $12.50. He has 150 coins in all. How many dimes does Paul have?

A. 50

B. 75

C. 100

D. 134

12. The tickets to a high school hockey game cost either $6 or $11. A total of 450 tickets, worth $3,950, were sold. How much of the $3,950 was made from selling the $6 tickets?

    A. $2,750

    B. $1,200

    C. $250

    D. $200

13. On weekdays, a movie theater charges different rates for adults and children. If 3 adults and 2 children go for a movie on a weekday, the total cost of the tickets is $31. If 2 adults and 3 children go on a weekday, the total cost of the tickets is $29. If a group of adults and 6 children go to the movie theater on a weekday and pay $58 for tickets, how many adults are in this group?

    A. 4

    B. 5

    C. 7

    D. 8

14. What is the *x*-value of the solution to the system of equations shown below?

$$\begin{cases} 4x + 10y = -2 \\ -3x + y = 10 \end{cases}$$

A. -3

B. -1

C. 1

D. 3

15. What is the solution to the system of equations shown below?

$$\begin{cases} \frac{2}{3}x - 2y = 5 \\ 2x + y = 1 \end{cases}$$

A. $\left(\frac{21}{10}, \frac{26}{5} \right)$

B. $\left(\frac{9}{7}, -\frac{11}{7} \right)$

C. $\left(\frac{15}{2}, 1 \right)$

D. $\left(\frac{3}{2}, -2\right)$

16. Ethan and Emily went shopping at a local farmers' market. They both bought the same type of apples and potatoes at the same stand. Ethan paid $25.50 for 8 pounds of apples and 5 pounds of potatoes. Emily paid $18.50 to buy 3 pounds of apples and 10 pounds of potatoes. Which ordered pair represents the price per pound of apples, x, and potatoes, y?

A. $(3.66, 0.76)$

B. $(2.50, 1.10)$

C. $(1.71, 2.36)$

D. $(0.62, 4.11)$

17. How many solutions does the system of equations shown below have?

$$\begin{cases} x+y = 4 \\ x-y = 6 \end{cases}$$

A. no solution

B. infinitely many solutions

C. one solution with a y value of 5

D. one solution with a y value of -1

18. What is the *y* value of the solution to the system of equations shown below?

$$\begin{cases} 4x + 3y = 10 \\ 3x - 2y = 5 \end{cases}$$

A. $\dfrac{5}{2}$

B. $\dfrac{35}{17}$

C. $\dfrac{10}{3}$

D. $\dfrac{10}{17}$

19. Jenny went to an office supply store and spent $21 (not including tax) on a total of 7 items (notepads and staplers). The cost of one notepad is $1, and the cost of one stapler is $8. How many notepads did Jenny buy?

A. 5

B. 4

C. 3

D. 2

20. Two customers entered Kim's bakery at the same time. One of them bought 7 bagels and 5 doughnuts, and paid $7.35. The other customer bought 4 bagels and 6 doughnuts, and paid $6.40. What is the price of each bagel and each doughnut?

    A. A bagel costs $0.30, and a doughnut costs $1.05.

    B. A bagel costs $0.55, and a doughnut costs $0.70.

    C. A bagel costs $0.70, and a doughnut costs $0.55.

    D. A bagel costs $1.05, and a doughnut costs $0.30.

21. Lincoln High School's basketball team won the regional playoffs scoring a total of 60 points, not including free throws. The team made a total of 26 baskets; some were 2-point shots, and the rest were 3-point shots. How many 2-point shots did the team make?

    A. 8
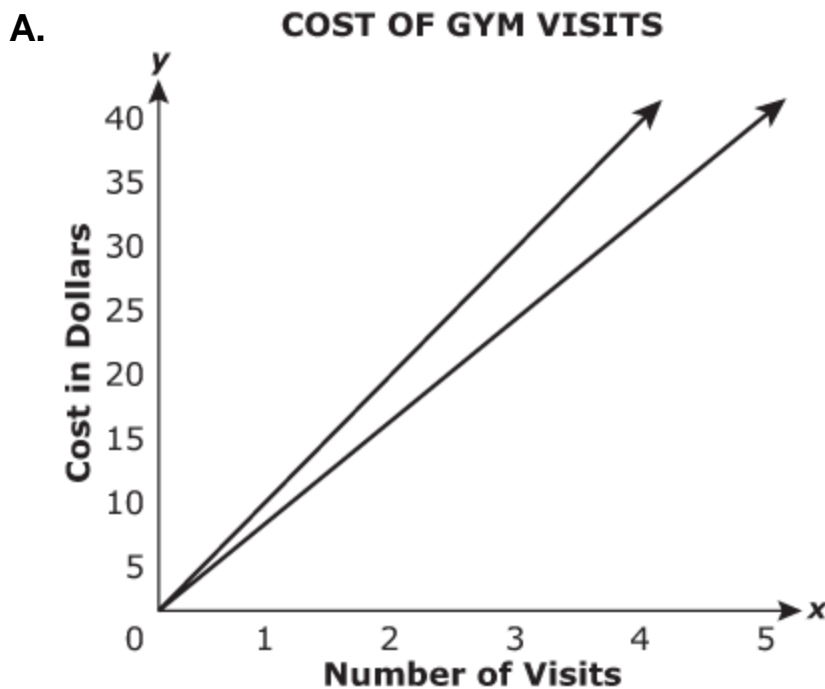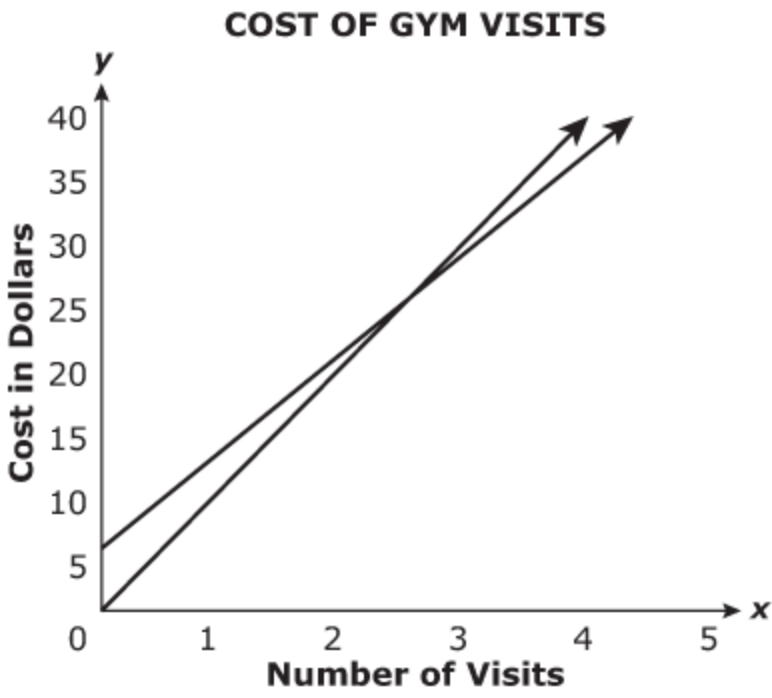
    B. 12

    C. 13

    D. 18

22. On Sunday 440 people visited a museum that charges $9 for each child and $12.50 for each adult. If the museum earned $5,220 on that day, how many adults visited the museum on Sunday?

    A. 20
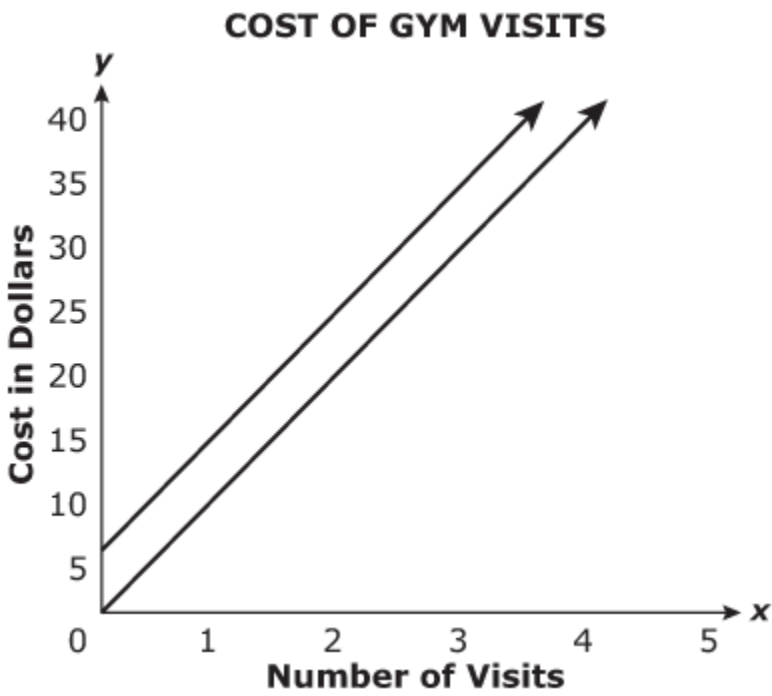
    B. 80

    C. 360

    D. 420

23. Raul is choosing from two plans at his gym. He can either pay a set price for each visit, or he can buy a membership, which would have a lower price per visit in addition to a membership fee. Which model could be used to determine which plan would be less expensive based on the number of visits he makes?

A.

COST OF GYM VISITS

Cost in Dollars
Number of Visits

B.

COST OF GYM VISITS

Cost in Dollars (y-axis): 5, 10, 15, 20, 25, 30, 35, 40
Number of Visits (x-axis): 0, 1, 2, 3, 4, 5

C.

COST OF GYM VISITS

Cost in Dollars (y-axis): 5, 10, 15, 20, 25, 30, 35, 40
Number of Visits (x-axis): 0, 1, 2, 3, 4, 5

D.

COST OF GYM VISITS

Cost in Dollars (y-axis): 5, 10, 15, 20, 25, 30, 35, 40

Number of Visits (x-axis): 0, 1, 2, 3, 4, 5