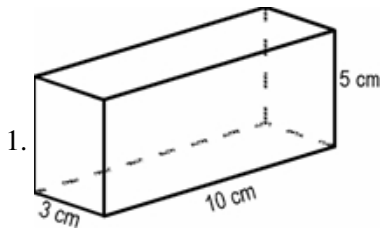


Name: \_\_\_\_\_

Date: \_\_\_\_\_



The formula for the volume of a pyramid is  $\frac{1}{3}$  multiplied by the area of the base multiplied by the height, or ( $V = \frac{1}{3}bh$ ). If the volume of a pyramid is 200 cu ft and the area of the base is 100 sq ft, what is the height of the pyramid?

- A. 1.5 ft
- B. 6 ft
- C. 60 ft
- D. 150 ft

2.

The recipe for whole wheat bread requires  $3\frac{1}{3}$  cups of bread flour and  $1\frac{1}{3}$  cups of whole wheat flour. What is the ratio of whole wheat flour to total flour used?

- A.  $\frac{2}{7}$
- B.  $\frac{3}{10}$
- C.  $\frac{1}{3}$
- D.  $\frac{2}{5}$

3. Given the proportion  $\frac{x}{y} = \frac{a}{b}$ , which of these statements is always true?

- A.  $ax = by$
- B.  $ay = bx$
- C.  $a + b = x + y$
- D.  $a^2 + y^2 = x^2 + b^2$

Algebra (MathGHS GT1)

4. Betty and John were both trying to solve the equation  $4x = 12$ . Betty multiplied both sides of the equation by the reciprocal of 4. John divided both sides of the equation by 4. Who solved the equation correctly?

- A. only Betty
  - B. only John
  - C. both
  - D. neither
- 

5. The ratio of Kevin's age ( $k$ ) to Maria's age ( $m$ ) is the same as the ratio of one foot to the number of feet in a yard. What proportion could be written to summarize this information?

A.

$$\frac{k}{m} = \frac{3}{k}$$

B.

$$\frac{k}{3} = \frac{1}{m}$$

C.

$$\frac{k}{m} = \frac{1}{3}$$

D.

$$\frac{m}{k} = \frac{1}{3}$$

---

6. Apples cost 25¢ each, bananas cost 30¢ each, and cantaloupes cost \$1.00 each. Which expression gives the number of cents Betty pays for  $a$  apples,  $b$  bananas, and  $c$  cantaloupes?

- A.  $155abc$
  - B.  $155(a + b + c)$
  - C.  $25a + 30b + 1c$
  - D.  $25a + 30b + 100c$
- 

7. Linda is one year less than twice as old as her brother Paul. Which formula below correctly represents this situation?

- A.  $L = 1 - 2P$
  - B.  $L = 2(P - 1)$
  - C.  $L = 2P - 1$
  - D.  $L = \frac{1}{2}(P - 1)$
-

Algebra (MathGHS GT1)

8. Tom reports that the ratio of teachers to students at South High School and North High School is the same. There are 45 teachers and 720 students at South High School. How many teachers are there at North High School if there are 560 students?

- A. 29 teachers
  - B. 35 teachers
  - C. 40 teachers
  - D. 58 teachers
- 

9. If the equations  $y = 3x + 5$  and  $y = 3x - 5$  were graphed, which statement below would be true?

- A. The two lines will be parallel.
  - B. The two lines would intersect at the origin.
  - C. The two lines would intersect at right angles.
  - D. The two lines would intersect at the point  $(5, -5)$ .
- 

10. Given the system of the following linear equations:

$$2x - 3y = 12$$

$$5x + 4y = 7$$

Solve for  $x$  and  $y$ .

- A.  $(-2, 3)$
  - B.  $(-2, -3)$
  - C.  $(3, 2)$
  - D.  $(3, -2)$
- 

11. The solution set for a pair of equations is  $(3, -1)$ . One of the equations is  $2y = x - 5$ . Which of the following could be the other equation?

- A.  $4y = 2x$
  - B.  $y = x + 2$
  - C.  $y = x - 4$
  - D.  $2y = x + 3$
- 

12. Which of these sets of ordered pairs would define a line with a negative slope?

- A.  $(5, 5)$   $(0, 1)$
  - B.  $(2, 3)$   $(-4, -1)$
  - C.  $(3, 6)$   $(5, 1)$
  - D.  $(2, 3)$   $(7, 6)$
-

Algebra (MathGHS GT1)

13.

In Mrs. William's algebra class, the ratio of girls to total number of students is  $\frac{17}{30}$ . What is the ratio of boys to girls in the class?

- A.  $\frac{13}{17}$
  - B.  $\frac{13}{30}$
  - C.  $\frac{17}{13}$
  - D.  $\frac{30}{13}$
- 

14. Which ordered pair below will be a point on the graph of the equation  $y = 2x + 3$ ?

- A. (2, 3)
  - B. (5, 1)
  - C. (3, 9)
  - D. (1, -1)
- 

15. Which ordered pair would represent the  $y$  intercept on a graph of the equation  $y = 2x - 6$ ?

- A. (0, 0)
  - B. (3, 0)
  - C. (0, -6)
  - D. (1, -4)
- 

16. To determine the fee charged to tow a car, a towing company uses the expression  $0.7d + 25$ , where  $d$  is the distance between the pickup point and the drop-off location. If a car is towed 31 miles, how much will the towing company charge the customer?

- A. \$39.20
  - B. \$46.70
  - C. \$56.70
  - D. \$242.00
-

17.

Simplify:

$$\frac{(3n-6)n}{-2(n-2)}$$

- A.  $-n$   
B.  $\frac{-3n}{4}$   
C.  $\frac{-n}{2}$   
D.  $\frac{-3n}{2}$
- 

18.

Donna's math quiz required her to solve, if possible, the following algebraic equation:

$$3x + 2y = y$$

She solved the equation this way:

$$5x = y$$

Which statement explains what Donna did or should have done?

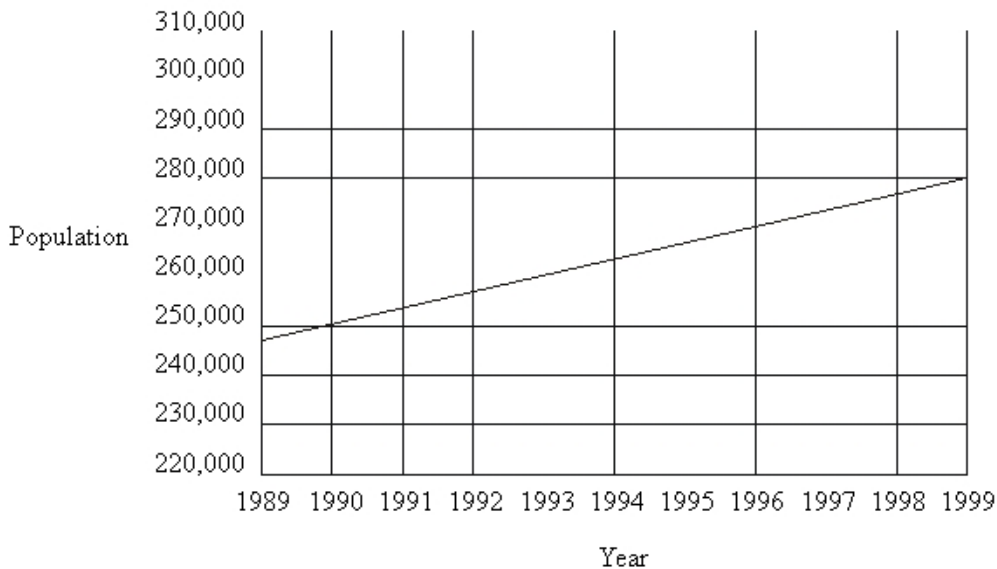
- A. She simplified the equation correctly.  
B. She added the variables incorrectly, and the answer is incorrect.  
C. She should have divided both sides by  $x$ , and the answer is incorrect.  
D. She should have multiplied the coefficients together, and the answer is incorrect.
-

19. Sampson finds that for every hour he lifts weights, he burns 400 calories. Which proportion should Sampson use to determine the number of calories he burned ( $C$ ) on a day when he lifted weights for 3 hours?

- A.  $\frac{400}{C} = \frac{3}{1}$   
 B.  $\frac{400}{1} = \frac{3}{C}$   
 C.  $\frac{400}{3} = \frac{1}{C}$   
 D.  $\frac{400}{1} = \frac{C}{3}$
- 

20. A city has set up a committee to estimate the area's population growth. Below is a graph of the population increase in recent years.

What will be the population in 2005 if this growth rate continues?



- A. 290,000  
 B. 300,000  
 C. 320,000  
 D. 340,000
-

21. Simplify the following:

$$\frac{4x+8+20x}{2y+6}$$

- A.  $\frac{4x}{y}$   
 B.  $\frac{32x}{8y}$   
 C.  $\frac{12x+4}{y+3}$   
 D.  $\frac{24x}{2y+6}$
- 

22.

Solve for  $n$ :

$$-n < 30$$

- A.  $n < -30$   
 B.  $n > -30$   
 C.  $n < 29$   
 D.  $n > 30$
- 

23. The slope of the line through points (1, 1) and (1, 2) is:

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

24.

In a box of blocks, there are  $r$  red blocks,  $b$  blue blocks, and  $y$  yellow blocks. Which fraction expresses the ratio of red blocks to the total number of blocks?

- A.  $\frac{b+y}{r}$   
 B.  $\frac{r}{b+y}$   
 C.  $\frac{r}{(r \times b \times y)} \frac{r}{(r \times b \times y)}$   
 D.  $\frac{r}{r+b+y}$
-

25.

The ratio of balloons to guests at a party is 12:5. If there are 30 guests, how many balloons are there?

- A. 12
  - B. 47
  - C. 72
  - D. 360
- 

26.

The area of a square room is about 200 square feet. The formula for the area of a square is  $A = s^2$ , where  $s$  represents the length of each side. The length of each side of the room is between

- A. 10 and 12 feet.
  - B. 14 and 15 feet.
  - C. 16 and 18 feet.
  - D. 19 and 21 feet.
- 

27. Find the value of  $3x2x^2$  when  $x = 3$ .

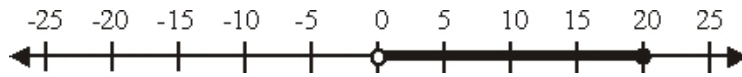
- A. 27
  - B. 48
  - C. 0
  - D. 9
- 

28.

Henry has a model of a train from the early 1900s. The ratio of the size of the model to the size of a real train is 3:80. If the door on the model is 4 inches tall, how tall is the door on the real train?

- A.  $27\frac{2}{3}$  inches
  - B.  $89\frac{1}{3}$  inches
  - C.  $106\frac{2}{3}$  inches
  - D. 320 inches
-

29.

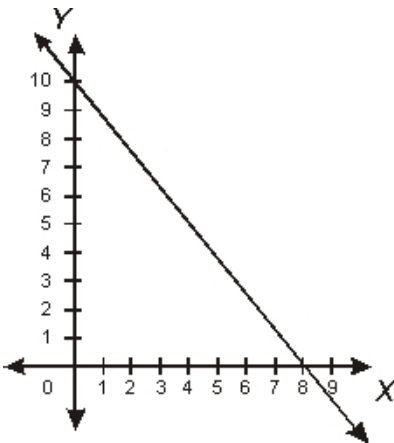


The graph above **best** describes which of the following statements?

- A. Andrea has 20 fish in her fish tank.
- B. Leslie needs at least 20 cupcakes for her class party.
- C. Morgan wants between \$10 and \$20 per week for lunch.
- D. Mandi will not need more than \$20 to buy a new book.

30.

What is the slope of the line on the graph below?



- A.  $\frac{5}{4}$
- B.  $\frac{4}{5}$
- C.  $-\frac{4}{5}$
- D.  $-\frac{5}{4}$

31.

Given the system of the following two linear equations:

$$x + 2y = 7$$

$$3x - y = 2$$

What would be the first step in eliminating the variable  $y$ ?

- A. Multiply the second equation by 2.
- B. Add the two equations.
- C. Add 5 to both sides of the second equation.
- D. Rewrite the equations so that  $y$  is on the right side.

**Answer Key**

1. B) 6 ft

2. A)

3. B)  $ay = bx$

4. C) both

5. C)

6. D)  $25a + 30b + 100c$

7. C)  $L = 2P - 1$

8. B) 35 teachers

9. A) The two lines will be parallel.

10. D) (3, -2)

11. C)  $y = x - 4$

12. C) (3, 6) (5, 1)

13. A)

14. C) (3, 9)

15. C) (0, -6)

16. B) \$46.70

17. D)

18. B) She added the variables incorrectly, and the answer is incorrect.

Algebra (MathGHS GT1)

19. D) =

20. B) 300,000

21. C)

22. B)  $n > -30$

23. D) undefined

24. D)

25. C) 72

26. B) 14 and 15 feet.

27. A)  $\neq 7$

28. C) 106 inches

29. D) Mandi will not need more than \$20 to buy a new book.

30. A) –

31. A) Multiply the second equation by 2.