

1. Simplify, if possible: $5(3x) + x = 15x + x = 16x$
- A. $16x$ B. $16x^2$ C. $8x$ D. $8x^2$
2. A daycare uses the formula $9a + 20b$ for determining the bill where 'a' represents regular business hours and 'b' represents late hours. If a child was at the day care for 20 regular business hours and 2 late hours, which would represent the bill for the week?
- A. $\left(\frac{9}{20}\right) + \left(\frac{20}{2}\right)$ B. $9(2) + 20(20)$ C. $9(20) + 20(2)$ D. $9 + 20 + 2 + 20$
3. Find the numerical value of $3b^3 - b$ if $b = 2$ $= 3(2)^3 - (2) = 3(8) - 2 = 24 - 2 = 22$
- A. 16 B. 22 C. 214 D. 727
4. A train is traveling at an average rate of 95 mph. If a passenger has been on the train for 3 hours and 45 minutes, how far has the passenger traveled? $d = r \cdot t$
 $d = (95)(3.75)$
 $(95)(3.75) = 356.25$
- A. 356.25 miles B. 327.75 miles C. 27.5 miles D. 25.3 miles
5. The algebraic expression $10.6x^2 + 1007$ models the value in millions of dollars of private property loss to fire damage in the United States x years after 1970. Evaluate the expression for $x = 15$. $10.6(15)^2 + 1007$
 $10.6(15)^2 + 1007 = 3392$
- A. 1243 B. 1166 C. 3392 D. 26288
6. Twelve painters are able to paint 2 houses a day. How many painters would be needed to paint 5 houses in a day? PAINTER: $\frac{12}{2} \times \frac{x}{5}$
 $2x = 60$
 $x = 30$
- A. 5 B. 24 C. 30 D. 36
7. Using 5 gallons of gas a homeowner is able to cut her yard 18 times. How many gallons would be needed to cut the yard 40 times? GALLON: $\frac{5}{18} \times \frac{x}{40}$
 $18x = 200$
 $x = 11.1$
- A. 3 gallons B. 11.1 gallons C. 40 gallons D. 144 gallons
8. A company charged a customer \$160 for 3 hours of limousine transportation. At this rate how much would the fee be for 5 hours of limousine's time (assuming the limousine could be rented by the hour)? COST: $\frac{160}{3} \times \frac{x}{5}$
 $3x = 800$
 $x = 266.67$
- A. \$266.67 B. \$96.00 C. \$320 D. \$215.60
9. Which expression corresponds to "Five increased by the product of three and a number"? $5 + 3x$
- A. $5 + \frac{3}{x}$ B. $5 + x^3$ C. $5(3 + x)$ D. $5 + 3x$
10. Which expression corresponds to "Three less than twice a number is fifteen"? $2x - 3 = 15$
- A. $3 - 2x = 15$ B. $2x - 3 = 15$ C. $3x - 2 = 15$ D. $2 - 3x = 15$

11. Solve the equation $2x - \frac{5}{2} = 3$, for x? $\frac{2x}{2} = \frac{8}{2}$ $x = 4$

A. -1

B. 4

C. 8

D. 15

12. What operation would be needed to solve the following equation for x, $x + 9 = 15$

A. Addition

B. Subtraction

C. Multiplication

D. Division

13. There are 6 red marbles and 10 blue marbles in a bag. What is the ratio of blue marbles to total marbles?

$\frac{\text{BLUE}}{\text{TOTAL}} : \frac{10}{6+10} = \frac{10}{16} = \frac{5}{8}$

A. $\frac{3}{5}$

B. $\frac{3}{8}$

C. $\frac{5}{8}$

D. $\frac{5}{3}$

14. 7 out of 12 people like mathematics at a particular school. If 780 people attend the school how many like mathematics?

$\frac{\text{MATH}}{\text{TOTAL}} : \frac{7}{12} \times \frac{x}{780}$

A. 10

B. 191

C. 455

D. 1337

7×780	5460
$5460 / 12$	455

15. Solve the equation $3x - 4 > 8$, for x? $\frac{3x}{3} > \frac{12}{3}$ $x > 4$

A. $x = 4$

B. $x < 4$

C. $x > 4$

D. $x \leq 4$

16. Which inequality describes the graph?



A. $x < 3$

B. $x > 3$

C. $x \leq 3$

D. $x \geq 3$

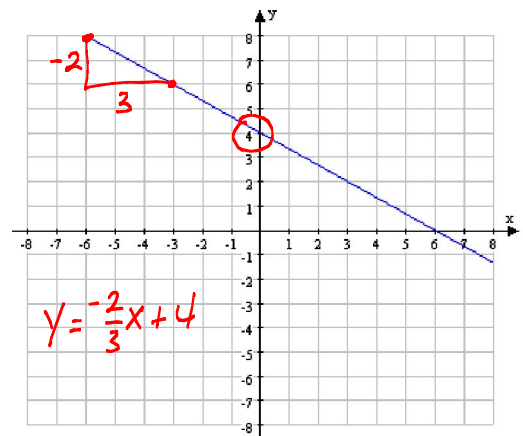
17. Which equation below matches the graph shown:

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

B. $y = -\frac{2}{3}x + 6$

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

D. $y = -\frac{3}{2}x + 6$



18. Consider the system of the following two linear equations:

$$\begin{array}{r} x + y = 4 \\ (+) 3x - y = 0 \\ \hline 4x = 4 \\ x = 1 \end{array} \quad \begin{array}{r} (1) + y = 4 \\ -1 \quad -1 \\ \hline y = 3 \end{array}$$

A. (1, -3)

B. (1, 3)

C. (-1, -3)

D. (-1, 3)

19. The hall in Ms. Jackson's house is a square, 5 feet on each side. To calculate the amount of carpet needed to cover the floor, she had to find the area of the floor. She used the formula $A = 5^2$, where 5 represents the length of one side. How many square feet of carpet did she need to carpet the hall?

A. 5 sq. ft.

B. 10 sq. ft.

C. 20 sq. ft.

D. 25 sq. ft.