

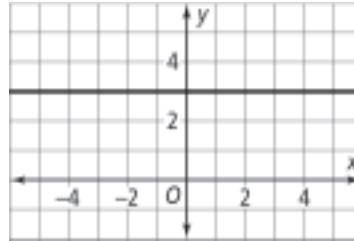
Benchmark Test 1

1. The fare for a taxi cab is a \$2 flat fee plus an additional \$1.50 for each mile. Which equation represents the total cab fare in dollars?
- A** $y + 2 = 1.5x$; y represents miles traveled, x represents the total fare
- B** $y = 1.5x + 2$; y represents the total fare, x represents miles traveled
- C** $1.5y = x + 2$; y represents the total fare, x represents miles traveled
- D** $y = (1.5 + 2)x$; y represents miles traveled, x represents the total fare

2. Jimmy's age is one year less than the sum of the ages of his siblings Serena and Tyler. Which equation represents Jimmy's age?
- F** $z = x + y - 1$; x represents Tyler's age, y represents Serena's age, and z represents Jimmy's age
- G** $x = y + z + 1$; x represents Jimmy's age, y represents Tyler's age, and z represents Serena's age
- H** $x = 1 - y + z$; x represents Serena's age, y represents Jimmy's age, and z represents Tyler's age
- J** $y = x + z - 1$; x represents Jimmy's age, y represents Serena's age, and z represents Tyler's age

3. Which of the following ordered pairs is not a solution to the equation represented by the graph?

- A** $(-3, 3)$
- B** $(3, 0)$
- C** $(0, 3)$
- D** $(3, 3)$



4. Which of the following reasons explains why the sum of $\frac{1}{3} + \frac{\sqrt{16}}{3}$ is a rational number?

- F Since $\frac{1}{3}$ and $\frac{\sqrt{16}}{3}$ both have terminating decimals when written in decimal form, their sum is a rational number.
- G A rational number is any number that can be graphed on a number line. Since $\frac{1}{3}$ and $\frac{\sqrt{16}}{3}$ can both be graphed on a number line, their sum is a rational number.
- H Rational numbers are whole numbers along with their opposites. Since $\frac{1}{3}$ is the opposite of the whole number 3, and $\frac{\sqrt{16}}{3}$ is the opposite of $\frac{3}{\sqrt{16}}$, their sum is a rational number.
- J Both $\frac{1}{3}$ and $\frac{\sqrt{16}}{3}$ are rational numbers. Therefore, their sum is a rational number.

5. Which property should be used next in this solution process?

$$3x + 2 + 3 = 7(x - 1) - 4$$

$$3x + 5 = 7(x - 1) - 4$$

- A Commutative Property of Addition
- B Identity Property of Multiplication
- C Associative Property of Multiplication
- D Distributive Property

6. The formula for how far a moving object travels in terms of the rate, or speed at which it moves, and the travel time, or how long it is moving, is $d = rt$, where d stands for distance, r stands for rate, and t stands for time. Rearrange the quantities in this formula to give a new formula for travel time in terms of distance and rate of travel.

- F $t = rd$
- G $t = \frac{d}{r}$
- H $t = \frac{r}{d}$
- J $t = d - r$

7. A heavy plastic rectangular sheet used in constructing greenhouses has an area of 80 ft by 40 ft. The entire sheet weighs 480 pounds. What is the weight per square foot of the sheet?

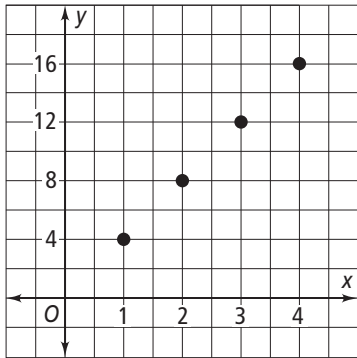
- A 0.15 lb/ft
- B 0.15 ft²/lb
- C 0.15 ft²/lb²
- D 0.15 lb/ft²

8. The table below shows amounts earned for dog-walking. How much is earned for a 7-day job?

| Days, x | Dollars, y |
|-----------|--------------|
| 1 | 13 |
| 2 | 26 |
| 3 | 39 |
| 4 | 52 |

- F 87
- G 89
- H 91
- J 93

9. Which relationship is represented by the graph below?



- A number of quarters needed for h hours of parking if each hour costs \$1
- B number of hours per day Mike spends studying if he spends 30 min on each subject
- C number of tickets needed for r amusement-park rides if each ride takes 6 tickets
- D number of dollars collected at a car wash if each wash costs \$5

10. What is the solution of $-21 = n - 8$?

- F $n = -168$
- G $n = -29$
- H $n = -13$
- J $n = 168$

11. What is the solution of $-81 = \frac{b}{6}$?

- A $b = -486$
- B $b = -75$
- C $b = 13.5$
- D $b = 486$

12. A gym charges \$35 per month for full access to their workout equipment. Mrs. Lewis has a \$140 gift certificate to the gym. For how many months can Mrs. Lewis work out using the gift certificate?

- F 3 months
- G 4 months
- H 5 months
- J 6 months

13. An auto repair shop charged \$75/h for labor plus an additional \$89 for parts. If the shop worked for 2 h, which equation represents the total repair cost C ?

- A $C = 75(2) - 89$
- B $C = 89(2) + 75$
- C $C = 75 + 89$
- D $C = 75(2) + 89$

14. Tara works in a clothing store where she earns a base salary of \$100 per day plus 12% of her daily sales. She sold \$800 in clothing on Saturday and \$1500 in clothing on Sunday. How much did she earn over the two days?

- F \$276
- G \$376
- H \$476
- J \$576

15. A cell phone company offers two different monthly text-messaging plans as shown in the table below. For what number of text messages will both plans cost the same?

| Messaging Plan | Monthly Fee | Fee per Message |
|----------------|-------------|-----------------|
| Plan A | \$35.00 | \$0.10 |
| Plan B | \$18.00 | \$0.30 |

- A 55 messages
 B 85 messages
 C 110 messages
 D 140 messages
16. Solve the equation below for y .
- $$8x - 2y = 24$$
- F $y = 4x - 12$
 G $y = 12 - 4x$
 H $y = 8x - 24$
 J $y = 4x - 8$
17. The equation $2w + 5j = 60$ is used to determine the number of water bottles w and the number of juice bottles j that can be bought for \$60. If you purchase 4 bottles of juice, how many bottles of water can you buy?

- A 10
 B 15
 C 20
 D 25

18. The formula for the area of a triangle is $A = \frac{1}{2}bh$, where b is the base of the triangle and h is the height of the triangle. What is the length of the base if the area is 22 cm^2 and the height is 8 cm?

- F 4.5 cm
 G 5 cm
 H 5.5 cm
 J 6 cm

19. Solve the proportion $\frac{15t}{5} = \frac{2t + 3}{6}$.

- A 0.03
 B 0.1875
 C 0.0375
 D 0.15

20. Two rooms in a house are similar rectangles. Room A is 12 ft by 16 ft. The longer side of Room B is 4 ft shorter than twice the length of the shorter side of Room A. What are the dimensions of the second Room B?

- F 15×20
 G 16×20
 H 16×16
 J 14×16

21. A map has a scale of 1 in. : 25 mi. Two cities are 175 mi apart. How far apart are they on the map?

- A 3 in.
 B 5 in.
 C 6 in.
 D 7 in.

22. What is the solution of the proportion

$$\frac{5}{8} = \frac{b}{12}?$$

- F $b = 7$
- G $b = 7.5$
- H $b = 8$
- J $b = 9.5$

23. What is the solution of the proportion

$$\frac{5}{x + 4} = \frac{3}{x - 2}?$$

- A $x = 9$
- B $x = 10$
- C $x = 11$
- D $x = 12$

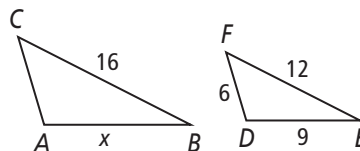
24. A water tank that holds 60 L of water can be emptied in 24 min. How long will it take to empty a water tank that holds 280 L of water?

- F 82 min
- G 96 min
- H 112 min
- J 128 min

25. The formula for the circumference C of a circle, in terms of the radius, is $C = 2\pi r$, where r stands for the radius. Rearrange the quantities in this formula to give a new formula for the radius of a circle in terms of the circumference.

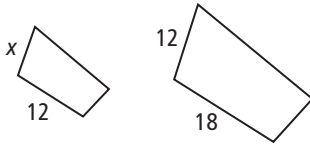
- A $r = \frac{2C}{\pi}$
- B $r = \frac{\pi}{2C}$
- C $r = \frac{C}{2\pi}$
- D $r = \frac{1}{2\pi C}$

26. The figures below are similar. What is the length of x ?



- F $6\frac{3}{4}$
- G 12
- H 16
- J $21\frac{1}{3}$

27. The figures below are similar. What is the length of x ?



- A 8
B 12
C 16
D 18
28. A dog toy is on sale for 20% off the original price. If the original price of the toy is \$11.50, what is the discounted price?
- F \$2.30
G \$6.20
H \$9.20
J \$9.50

29. The price per share of a professional sports team increased from \$58 to \$65 over the past year. What is the stock's percent increase during this time? Round your answer to the nearest percent.

- A 7%
B 9%
C 11%
D 12%

30. Daniela measures her math book and records its width as 21.9 cm to the nearest tenth of a centimeter. The actual measurement of the book's width is 22.0 cm. What is the percent error of her measurement? Round your answer to the nearest tenth of a percent.

- F 0.2%
G 0.5%
H 2.3%
J 4.5%

