
Quantitative Reasoning:

includes calculating ratios, proportions, and percents, as well as identifying, manipulating, and interpreting linear equations and expressions.

1. Bill traveled 13.6 miles of his delivery route in 2.4 hours. At this same rate, which of the following is closest to the time it will take for Bill to travel 20 miles?

- A. 3 hours
- B. 3.5 hours
- C. 6 hours
- D. 6.5 hours

2. Jen bought 4 books. Kim bought 5 books and a \$22.00 backpack. Together, Jan and Kim spent \$49.00. If each book cost the same amount, how much did each book cost?

- A. \$3.00
- B. \$3.50
- C. \$4.50
- D. \$5.00

3. If the price of 5 plums is \$2.35, what is the price of 16 plums?

- A. \$6.15
- B. \$7.52
- C. \$9.15
- D. \$9.72

4. There are exactly 60 rocks in a box. If x rocks are removed, which of the following expressions represents the number of rocks left in the box?

- A. $\frac{60}{x}$
- B. $60x$
- C. $x - 60$
- D. $60 - x$

5. The table below shows the number of members of a local music club who attended each of the three monthly meetings of the club last summer. If no members left or joined the club during the summer, what is the least number of members that the club could have had during the summer?

- A. 43
- B. 38
- C. 55
- D. 136

Month	Number Attending
June	55
July	38
August	43

Algebraic Reasoning:

includes solving equations (linear, quadratic, polynomial,exponential, rational, and radical), evaluating functions, and solving algebraic problems in context.

6. In the xy-plane, what is the y-intercept of the graph of the equation $y = (x - 3)^2$?

- A. 0
- B. 3
- C. 6
- D. 9

7. If $5p + 8 = 17$, what is the value of p?

- A. $\frac{5}{25}$
- B. $\frac{5}{9}$
- C. $\frac{9}{5}$
- D. $\frac{25}{4}$

8. What are the coordinates of the point of intersection of $y = x + 4$ and $y = 4x - 5$?

- A. (2 , 6)
- B. (3 , 7)
- C. (4 , 9)
- D. (5 , 12)

9. Which of the following is equivalent to $x^2 + 4x - 12$?

- A. $(x + 4)(x - 3)$
- B. $(x - 4)(x + 3)$
- C. $(x + 6)(x - 2)$
- D. $(x - 6)(x + 2)$

10. In the equation below, T represents the boiling point of water in degrees Fahrenheit, and h represents the height above sea level in feet. If $T = 208^{\circ}\text{F}$, what is the value of h?

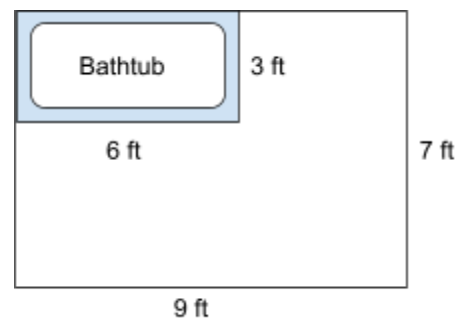
$$T = 212 - \frac{h}{550}$$

- A. 212 ft
- B. 1,100 ft
- C. 1,560 ft
- D. 2,200 ft

Geometric and Spatial Reasoning:

includes converting units within measurement systems, solving geometric problems (perimeter, area, surface area, and volume), performing transformations, and applying right triangle trigonometry.

11. Jenny wants to retiling her bathroom floor. She does NOT need to tile underneath the bathtub. According to the drawing below, what is the area of the bathroom floor that needs to be retiled?



- A. 10 sq ft
- B. 18 sq ft
- C. 45 sq ft
- D. 63 sq ft

12. The formula for the perimeter of a rectangle with length L and width W is given below. If a rectangle has a perimeter 26, what could be its length L and width W?

$$P = 2(L + W)$$

- A. $L = 2, W = 10$
- B. $L = 6, W = 20$
- C. $L = 5, W = 7$
- D. $L = 9, W = 4$

13. If a triangle has sides of length x, x + 1, and x - 2, what is the perimeter of the triangle in terms of x?

- A. $3x - 3$
- B. $3x - 1$
- C. $3x + 1$
- D. $3x + 3$

14. What is the area of a square that has a perimeter of 28 feet?

- A. 28 square feet
- B. 36 square feet
- C. 49 square feet
- D. 64 square feet

15. Figure 2 is a 90° clockwise rotation of Figure 1. Which of the following angles in figure 2 corresponds to $\angle B$ in figure 1?

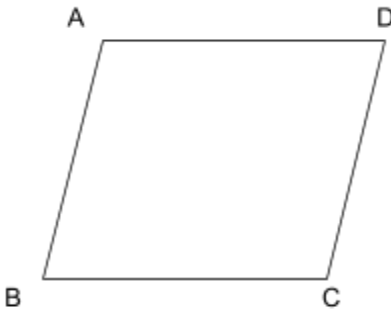


Figure 1

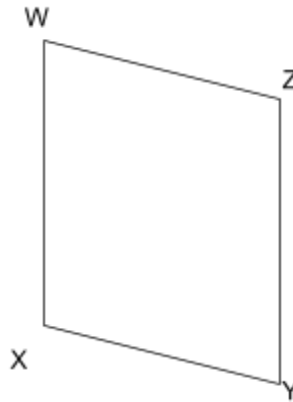


Figure 2

- A. $\angle W$
- B. $\angle X$
- C. $\angle Y$
- D. $\angle Z$

Probabilistic and Statistical Reasoning:

includes classifying data, constructing appropriate representations of data, computing and interpreting probability, and describing measures of center and spread of data.

16. The average of 6, 12, and x is 8. What is the value of x ?

- A. 6
- B. 8
- C. 10
- D. 12

17. The following are scores for 6 students in Mr. Schuler's math class.

541 412 500 622 601 524

What is the range of the scores?

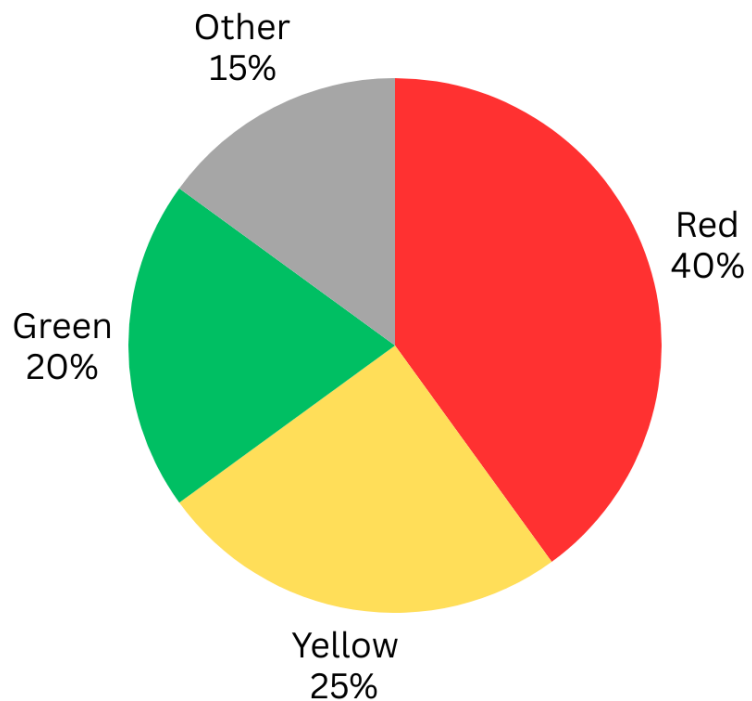
- A. 101
- B. 154
- C. 189
- D. 210

18. The table shows a restaurant's cost per meal for each of the five types of meals the restaurant sells. If the mean cost per meal is \$7.30, what is the cost per meal, in dollars, for grilled fish?

Type of Meal	Cost Per Meal
Hamburger	\$7.30
Pizza	\$8.20
Steak	\$7.00
Grilled Fish	x
Veggie	\$8.60

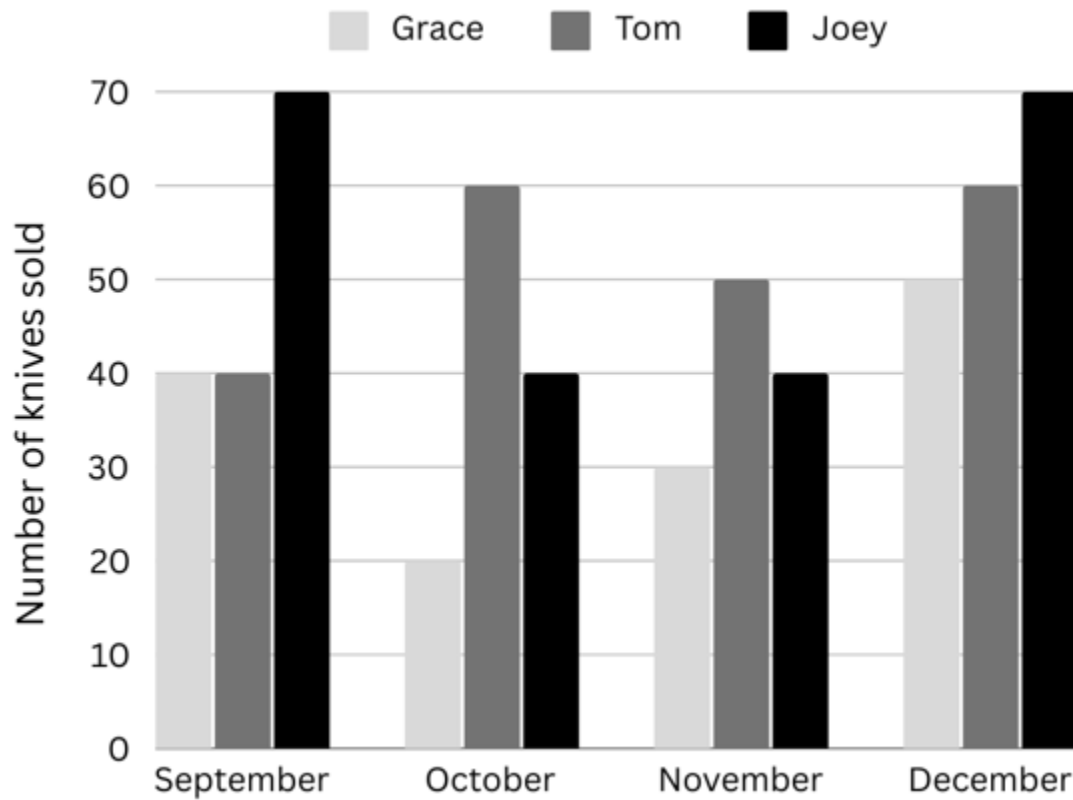
- A. \$5.40
- B. \$6.70
- C. \$7.90
- D. \$8.40

19. The circle graph gives the distribution of the colors of markers in a large box. If there are about 2,000 markers in the box, which of the following is closest to the difference between the number of yellow and green markers?



- A. 50
- B. 100
- C. 150
- D. 200

20. The number of knives sold per month by three salespeople for four different months is shown in the given graph. Based on the graph, which of the following is a true statement?



- A. The average number of knives sold by the three salespeople in December was 60 knives.
- B. The average number of knives sold by the three salespeople in September was 60 knives.
- C. The average number of knives sold by the three salespeople in October was 50 knives.
- D. The average number of knives sold by the three salespeople in November was greater than the average number of knives sold by the three salespeople in October.