

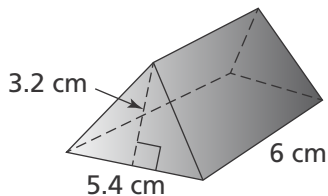
1. Andrew has one book that is  $2\frac{3}{7}$  inches thick and a second book that is 3.56 inches thick. If he stacks the books, about how tall will the stack be? Round to the nearest hundredth.

- (A) 5.93 inches
- (B) 5.98 inches
- (C) 5.99 inches
- (D) 6 inches

2. Jeremiah makes a recipe that calls for  $1\frac{1}{2}$  cups of flour and  $\frac{3}{4}$  stick of butter. If Jeremiah uses 3 sticks of butter, how many cups of flour will he need?

- (A) 2 cups
- (B)  $3\frac{3}{8}$  cups
- (C)  $4\frac{1}{2}$  cups
- (D) 6 cups

3. What is the volume of the triangular prism?



- (A)  $8.64 \text{ cm}^3$
- (B)  $17.28 \text{ cm}^3$
- (C)  $51.84 \text{ cm}^3$
- (D)  $103.68 \text{ cm}^3$

4. Rebekah bought  $g$  gallons of paint for \$12.85 per gallon and  $b$  brushes for \$4.79 each. Which expression can be used to determine the total amount Rebekah spent on paint and brushes?

- (A)  $4.79b + 12.85g$
- (B)  $4.79g + 12.85b$
- (C)  $12.85b + 4.79b$
- (D)  $12.85g - 4.79b$

5. At a wedding reception, an equal number of guests were seated at 12 round tables. The 13 people in the wedding party were seated at a rectangular table. There were 121 people at the reception altogether. Which equation could you use to find the number of guests,  $n$ , seated at each round table?

- (A)  $12 + 13n = 121$
- (B)  $12n + 13 = 121$
- (C)  $121 = 12n - 13$
- (D)  $121 = 13n - 12$

6. The world record for the greatest temperature range recorded in one day occurred in Browning, Montana, in 1916. The temperature fell from  $44^\circ\text{F}$  to  $-56^\circ\text{F}$ . What was the temperature change that day?

- (A)  $-100^\circ\text{F}$
- (B)  $-12^\circ\text{F}$
- (C)  $12^\circ\text{F}$
- (D)  $100^\circ\text{F}$

7. A 12-section game wheel has a 25% probability that the pointer will land on green. What is the likelihood that the pointer will land on green?
- (A) It is certain the pointer will land on green.
  - (B) It is neither likely nor unlikely the pointer will land on green.
  - (C) It is likely the pointer will land on green.
  - (D) It is unlikely the pointer will land on green.

8. How many triangles can be formed from two given angle measures and the length of their included side?

- (A) None
- (B) One
- (C) Two
- (D) Infinite number

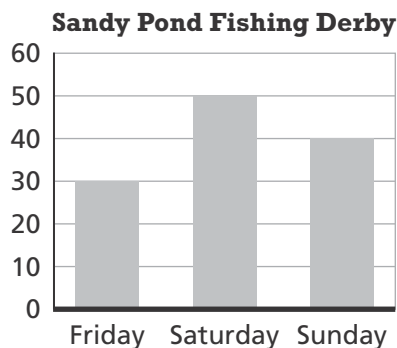
9. A national survey of middle-school students asks which subject is most challenging. Which of these samples is a representative sample?

- (A) 372 sixth-graders in a certain town
- (B) 972 seventh-graders in a certain county
- (C) 619 eighth-graders in different states
- (D) 400 students from various states, representing different grades, 6–8

10. The manager of a food court estimates that he needs 7 pretzels for every 20 people who attend a hockey game. What constant of proportionality relates the number of pretzels to people?

- (A) 0.35
- (B) 2.86
- (C) 35
- (D) 140

11. A fishing derby was held over the Fourth of July weekend. What is the percent change in fish caught from Saturday to Sunday?



- (A) 20% increase
- (B) 10% increase
- (C) 20% decrease
- (D) 10% decrease

12. Which expression is equivalent to  $\frac{1}{2}x + (-7) - 2\frac{1}{4}x - (-2)$ ?

- (A)  $-1\frac{3}{4}x - 5$
- (B)  $1\frac{3}{4}x - 9$
- (C)  $3\frac{3}{4}x - 9$
- (D)  $3\frac{3}{4}x - 7$

13. Solve the equation below for  $x$ .

$$-\frac{1}{2}(3x - 4) = 11$$

- (A)  $-13\frac{2}{3}$
- (B)  $-8\frac{1}{3}$
- (C)  $-6$
- (D)  $6$

14. Use the table from a random survey about the preferred service for streaming movies. Out of 750 people, how many would you expect to prefer Company B?

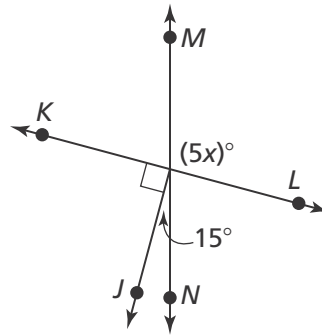
Service	Number of People
Company A	75
Company B	32
Company C	18

- (A) 192
- (B) 240
- (C) 510
- (D) 558

15. A bag holds 12 red marbles, 11 green marbles, 17 blue marbles, and 5 yellow marbles. What is the probability that you will **NOT** choose a blue marble?

- (A)  $\frac{5}{45}$
- (B)  $\frac{11}{45}$
- (C)  $\frac{12}{45}$
- (D)  $\frac{28}{45}$

16. What is the value of  $x$ ?

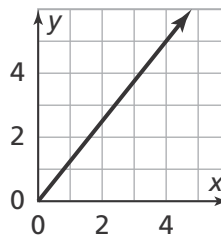


- (A) 15
- (B) 21
- (C) 26
- (D) 105

17. Find the quotient:  $-\frac{10}{19} \div \left(-\frac{5}{7}\right)$ .

- (A)  $-\frac{70}{95}$
- (B)  $-\frac{14}{19}$
- (C)  $\frac{14}{19}$
- (D)  $\frac{70}{95}$

18. What is the constant of proportionality shown on the graph?



- (A) 0.80
- (B) 1.25
- (C) 4
- (D) 5

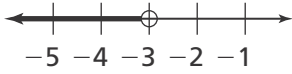
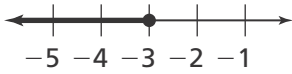
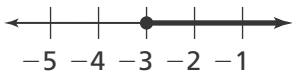
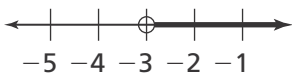
19. Sonya buys four pairs of shoes on sale for buy one, get one 50% off. The sales tax is 6.5%. If the original price for each pair of shoes was \$35, how much does Sonya pay for the four pairs altogether?

- (A) \$74.55
- (B) \$105.00
- (C) \$111.83
- (D) \$149.10

20. A gardener is installing fence around his garden. Let  $x$  represent the width of the garden, in feet. The perimeter of the garden is  $8x + 8$ . Which expression represents the length of the garden?

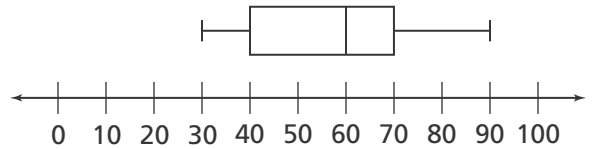
- (A)  $2x + 2$
- (B)  $3x + 4$
- (C)  $6x + 8$
- (D)  $8x + 8 - 2x$

21. Solve the inequality  $-7x > 21$ . What is the graph of the solution?

- (A) 
- (B) 
- (C) 
- (D) 

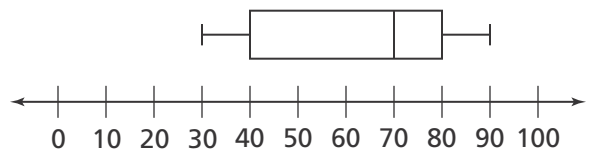
22. Which is the interquartile range for the city that has the greater variability in temperature?

City A



Degrees Fahrenheit

City B



Degrees Fahrenheit

- (A) 10
- (B) 20
- (C) 30
- (D) 40

23. Kayla rolls two number cubes numbered 1 to 6. What is the probability that the sum of the numbers rolled will be 5?

- (A)  $\frac{1}{19}$
- (B)  $\frac{1}{9}$
- (C)  $\frac{1}{8}$
- (D)  $\frac{1}{6}$

24. A cosmetics company tested a new lotion. Of the 2,500 people tested, 15 had an allergic reaction. What percent of the people tested had an allergic reaction to the new lotion?

- (A) 0.006%
- (B) 0.06%
- (C) 0.6%
- (D) 6%

**25.** Major League Baseball's fastest recorded pitch is 105 miles per hour. The distance between the pitcher's mound and home plate is 60 feet, 6 inches. How long did it take the ball to travel from the pitcher to the batter?

- (A) About 0.4 second
- (B) About 0.7 second
- (C) About 4 seconds
- (D) About 7 seconds

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**26.** Maria needs to buy cat food. At Save Rite, cat food costs \$5.25 for 3 cans. Spend Less offers cat food at \$7.50 for 5 cans. Maria buys 15 cans from the store with the lowest price. How much did she pay?

- (A) \$8.57
- (B) \$10.00
- (C) \$22.50
- (D) \$26.25

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**27.** Malik borrowed \$8,000 to buy a new boat. He will pay off the loan after 4 years by paying back the principal plus 6.5% simple interest. How much will Malik pay back altogether?

- (A) \$520
- (B) \$2,080
- (C) \$8,000
- (D) \$10,080

**28.** Find the sum.

$$(-7b + 8c) - (12a + 14) + (5a + 5b)$$

- (A)  $-7a + 12b + 8c + 14$
- (B)  $-7a - 2b + 8c - 14$
- (C)  $17a - 2b + 8c + 14$
- (D)  $17a - 2b + 8c - 14$

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**29.** A store sells three varieties of cheese—cheddar, Gouda, and Swiss. Each variety of cheese is available in two different styles—shredded or sliced. How many possible outcomes for the variety and style of cheese are there?

- (A) 2
- (B) 3
- (C) 5
- (D) 6

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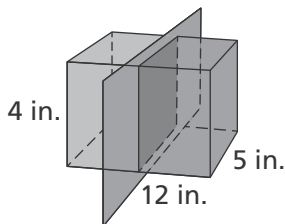
**30.** The low temperatures in two cities are being compared. In City 1, the range in temperature is  $20^{\circ}\text{F}$  and the IQR is  $7^{\circ}\text{F}$ . In City 2, the range in temperature is  $15^{\circ}\text{F}$  and the IQR is  $7^{\circ}\text{F}$ . What might you conclude about the cities based on the ranges and interquartile ranges?

- (A) The weather patterns in City 1 and City 2 are equally consistent.
- (B) The weather pattern in City 2 is more consistent than the weather pattern in City 1.
- (C) The weather pattern in City 1 is more consistent than the weather pattern in City 2.
- (D) There is not enough information to make a conclusion.

31. For Spirit Day, each 8th-grade homeroom designs a unique two-color T-shirt. They get to choose from the colors red (R), blue (B), green (G), violet (V), and orange (O). Each T-shirt is a solid color with a different color used for the student's name. What is the probability that a homeroom will have a T-shirt with a combination of blue and violet?

- (A)  $P(B \text{ and } V) = 10\%$
- (B)  $P(B \text{ and } V) = 20\%$
- (C)  $P(B \text{ and } V) = 30\%$
- (D)  $P(B \text{ and } V) = 40\%$

32. What are the dimensions of the vertical cross section shown on this right rectangular prism?



- (A)  $5 \text{ in.} \times 12 \text{ in.}$
- (B)  $4 \text{ in.} \times 12 \text{ in.}$
- (C)  $5 \text{ in.} \times 4 \text{ in.}$
- (D)  $12 \text{ in.} \times 5 \text{ in.}$

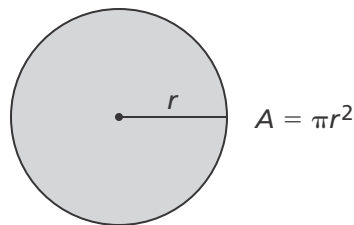
33. Which inequality represents the following situation:  $\frac{3}{5}$  times 5 less than a number is no more than 27?

- (A)  $\frac{3}{5}(x - 5) \geq 27$
- (B)  $\frac{3}{5}x - 5 \leq 27$
- (C)  $\frac{3}{5}(5 - x) \geq 27$
- (D)  $\frac{3}{5}(x - 5) \leq 27$

34. Charlie bought a car for 5% off the selling price of \$7,200. The sales tax for his state is 3.4%. How much is the sales tax?

- (A) \$232.56
- (B) \$244.80
- (C) \$257.04
- (D) \$347.76

35. The circumference of a circle is  $6\pi$  inches. What is the area of the circle?



- (A)  $3\pi \text{ in.}^2$
- (B)  $9\pi \text{ in.}^2$
- (C)  $12\pi \text{ in.}^2$
- (D)  $36\pi \text{ in.}^2$

36. A company owns two manufacturing plants with daily production levels of  $8x + 17$  widgets and  $5x - 7$  widgets, where  $x$  represents a minimum quantity. How many more items does the first plant produce daily than the second plant?

- (A)  $13x + 10$  widgets
- (B)  $3x + 10$  widgets
- (C)  $3x + 24$  widgets
- (D)  $13x - 10$  widgets