

Write your answers for questions 1 through 30.



You may NOT use a calculator for this session.

1. Which equation is true?

A. $\frac{5}{8} = -\left(\frac{-5}{-8}\right)$

B. $\frac{-3}{-4} = -\frac{3}{4}$

C. $-\left(\frac{12}{-17}\right) = \frac{12}{17}$

D. $\frac{9}{-13} = -\left(\frac{-9}{13}\right)$

2. Yvonne used 5 tablespoons of butter for a recipe. For a second recipe she used 10% less butter than she did for the first recipe. The total amount of butter, in tablespoons, she used for both recipes can be found using the expression below.

$$5 + 5 - 5(10\%)$$

Which other expression can be used to find the amount of butter, in tablespoons, she used for both recipes?

A. $10 - 5\%$

B. $10 - 50\%$

C. $5 + 5(0.9)$

D. $5 + 5(1 - 10)$

3. The current temperature is -7°C . The high temperature yesterday was as many degrees above 0°C as the current temperature is below 0°C . Which expression could be used to find the number of degrees between the current temperature and yesterday's high temperature?

- A. $0 - 7$
- B. $-7 + 7$
- C. $7 + 0$
- D. $7 + 7$

4. Michael paid a total of \$48 for 4 pizzas. He used a coupon for \$4 off the entire order. The equation below can be used to determine the regular price of 1 pizza, p .

$$4p - 4 = 48$$

What is the regular price of 1 pizza?

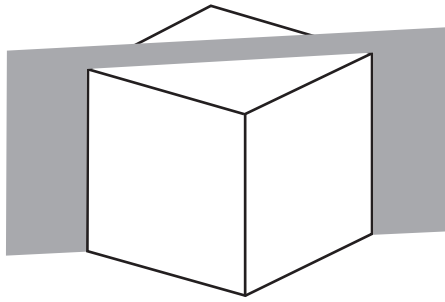
- A. \$11
 - B. \$12
 - C. \$13
 - D. \$16
5. Diana had a coupon for c dollars off of each box of crackers. Diana bought 2 boxes of crackers for $4.50 - c$ dollars each. She also bought 8 cans of soup for s dollars each. The total amount, in dollars, she spent on the cans of soup and boxes of crackers is represented by the expression below.

$$2(4.50 - c) + 8s$$

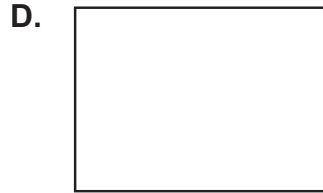
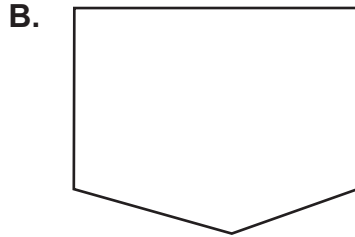
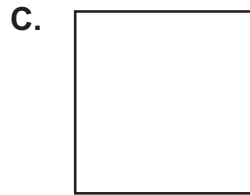
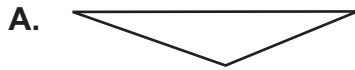
Which expression also represents the total amount, in dollars, she spent?

- A. $6.50 - 2c + 8s$
- B. $6.50 - 2c + 10s$
- C. $9 - c + 8s$
- D. $9 - 2c + 8s$

6. Use the diagram below to answer the question.



Which shape **best** represents the 2-dimensional shape formed by the slice made by the plane through the vertices of the cube shown?



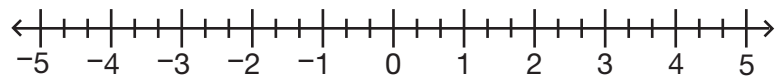
7. Nadia will survey 50 students in her town to find out what their favorite summertime activity is. Which group would likely give the **best** representation for her survey?

- A. 50 students at a library
- B. 50 students in her school
- C. 50 students at a shopping mall
- D. 50 students taking swimming lessons

8. Tracy has \$35 to buy comic books and to pay for a movie ticket. Each comic book costs \$3. The movie ticket costs \$10. Which inequality can be used to determine how many comic books, b , Tracy can buy?

- A. $35 - 3b \leq 10$
- B. $35 - 3b \geq 10$
- C. $35 - 10b \leq 3$
- D. $35 - 10b \geq 3$

9. Use the number line below to answer the question.



Which number is 4 units from -1 ?

- A. -3
 - B. -4
 - C. 3
 - D. 4
10. A roll of 40 quarters weighs 8 ounces. Which proportion can be used to find the weight in ounces, w , of 200 quarters?

- A. $\frac{40}{8} = \frac{200}{w}$
- B. $\frac{40}{w} = \frac{8}{200}$
- C. $\frac{40}{200} = \frac{w}{8}$
- D. $\frac{40}{8+w} = \frac{w}{200}$

11. Briana biked 2.82 miles on Monday, 3.75 miles on Wednesday, and 2.13 miles on Friday. Briana estimated the total distance she biked. Which statement correctly compares an estimate of the total distance with the exact total distance that Briana biked?
- A. The estimate $2 + 3 + 2$ is smaller than the exact answer but is within 1 mile.
 - B. The estimate $2 + 4 + 2$ is greater than the exact answer but is within 1 mile.
 - C. The estimate $3 + 4 + 2$ is smaller than the exact answer but is within 1 mile.
 - D. The estimate $3 + 4 + 2$ is greater than the exact answer but is within 1 mile.
12. Donna fed $\frac{1}{11}$ of the chickens at a farm. Which decimal is equal to the fraction of chickens Donna fed?
- A. $0.\overline{09}$
 - B. $0.0\overline{9}$
 - C. $0.\overline{01}$
 - D. $0.0\overline{1}$
13. It is highly likely that Malika will randomly select the letter A from a group of letters. From which group of letters could Malika be selecting?
- A. A, E, I, O, U
 - B. A, B, C, A, D
 - C. A, F, A, G, A, H
 - D. A, A, J, A, A, K

14. A box of sunflower seeds contains p packets. Each packet of sunflower seeds contains s seeds. Which equation can be used to find the number of sunflower seeds in a box, b ?

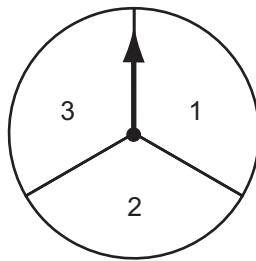
A. $p = sb$

B. $p = \frac{s}{b}$

C. $b = ps$

D. $b = \frac{p}{s}$

15. Ariana is playing a game. For each of her turns, she rolls a number cube labeled with the numbers 1 through 6. She also spins the spinner shown below.



To win the game Ariana needs to roll a 3 and spin a 3 on her next turn. What is the probability that Ariana will win the game on her next turn?

A. $\frac{1}{18}$

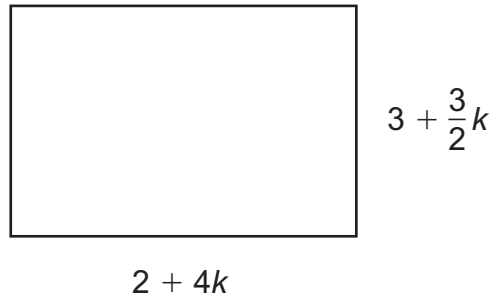
B. $\frac{1}{9}$

C. $\frac{1}{6}$

D. $\frac{1}{3}$

16. A school is designing two parking lots. The design for the first parking lot is shown below.

First Parking Lot Design



The second parking lot is being designed so that its perimeter is $\frac{3}{4}$ of the perimeter of the first parking lot. The perimeter of the second parking lot can be represented by the expression shown below.

$$\frac{3}{4} \left(2(2 + 4k) + 2 \left(3 + \frac{3}{2}k \right) \right)$$

Which other expression also represents the perimeter of the second parking lot?

- A. $\frac{15}{2} + \frac{33}{4}k$
- B. $\frac{15}{2} + 11k$
- C. $9 + 9k$
- D. $10 + 11k$

17. Use the expression below to answer the question.

$$-\frac{3}{4} \times \frac{2}{5}$$

Which situation can be modeled by the expression?

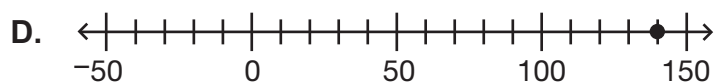
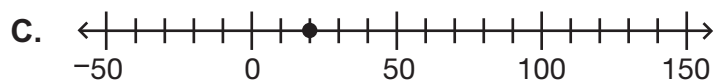
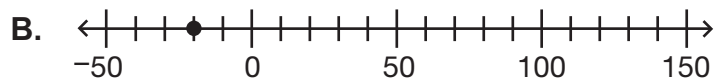
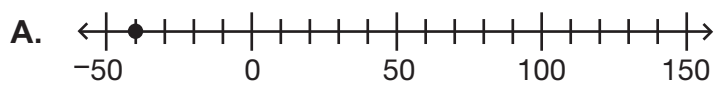
- A. Zach owes $\frac{3}{4}$ of the original price of his car. Each month he pays $\frac{2}{5}$ of the original price. How many months will it take Zach to pay off his car?
- B. Zach owes $\frac{3}{4}$ of the original price of his car. Each month he pays $\frac{2}{5}$ of how much he still owes on the car. What fraction of the original price does Zach owe after this month's payment?
- C. Abdi owes Kim $\frac{3}{4}$ of a dollar. He needs to borrow more money from Kim. Abdi then borrows $\frac{2}{5}$ of how much he owes. By what fraction of a dollar does the amount Abdi owes Kim change?
- D. Abdi owes Kim $\frac{3}{4}$ of a dollar. He pays her $\frac{2}{5}$ of how much he owes. What fraction of a dollar does Kim receive from Abdi?
18. Angles F and G are complementary angles. Angles G and H are supplementary angles. The degree measure of each angle is a whole number. What is the smallest possible measure of angle H?
- A. 1°
- B. 89°
- C. 91°
- D. 179°

19. Chico is saving for new shoes that cost \$87. He already has \$9 saved, and he will save the same amount each week. Chico wants to buy the shoes in 6 weeks. The inequality shown below can be used to determine x , the amounts that Chico can save each week and still buy the new shoes in 6 weeks.

$$9 + 6x \geq 87$$

What is the least amount Chico can save each week and still buy the new shoes in 6 weeks?

- A. \$9
B. \$13
C. \$15
D. \$16
20. In a game, Janeesa started with 0 points. She then earned 50 points, lost 80 points, and earned 10 points. Which number line shows Janeesa's ending score in the game?



21. Which situation can be represented by the equation $y = 8x$?
- A. Nilay bought x items at a store. Each item costs \$8. Nilay spent a total of y dollars at the store.
 - B. Nilay baked y batches of cookies. There were 8 cookies in each batch. Nilay baked a total of x cookies.
 - C. Nilay correctly answered x questions on a quiz. Each question was worth y points. Nilay received a total of 8 points on the quiz.
 - D. Nilay earned \$8 for babysitting. He also earned x dollars for mowing lawns. Nilay earned a total of y dollars for babysitting and mowing lawns.
22. Tamara is trying to determine if a greeting card maximizes the area of her photo. The photo on the greeting card is $2\frac{1}{4}$ inches by $3\frac{3}{4}$ inches. Tamara estimated the area of the photo. Which statement correctly compares the estimated area and the exact area of the photo?
- A. The estimate 2×4 is larger than the exact answer and is within 1 square inch.
 - B. The estimate 2×4 is smaller than the exact answer and is within 1 square inch.
 - C. The estimate $2 \times 3 + 1$ is larger than the exact answer and is within 1 square inch.
 - D. The estimate $2 \times 3 + 1$ is smaller than the exact answer and is within 1 square inch.

23. Use the equation below to answer the question.

$$\left(-\frac{1}{3}\right) \div 27 = x$$

Which equation could be solved to also find x ?

- A. $-27 \times 3 = x$
- B. $-27 \div 3 = x$
- C. $-1 \div (27 \div 3) = x$
- D. $-1 \div (27 \times 3) = x$

24. Vincent bought a 25-pound bag of rice. He cooked 6.25 pounds of the rice. He stored the rest of the rice in $3\frac{3}{4}$ -pound portions. What is the maximum number of $3\frac{3}{4}$ -pound portions he stored?

- A. 2.5
- B. 3.4
- C. 5.0
- D. $6.\bar{6}$

25. Divide.

$$-1\frac{1}{5} \div -1\frac{5}{6}$$

- A. $-\frac{11}{5}$
- B. $-\frac{36}{55}$
- C. $\frac{36}{55}$
- D. $\frac{11}{5}$

26. Use the expression below to answer the question.

$$-\frac{6}{15} + \frac{10}{22}$$

Which set of steps correctly solves the expression?

A.
$$-\frac{6}{15} + \frac{10}{22}$$
$$\frac{6}{15} - \frac{10}{22}$$
$$\frac{2}{5} - \frac{5}{11}$$
$$\frac{22}{55} - \frac{25}{55} = -\frac{3}{55}$$

C.
$$-\frac{6}{15} + \frac{10}{22}$$
$$\frac{10}{22} - \frac{6}{15}$$
$$\frac{5}{11} - \frac{2}{5}$$
$$\frac{\cancel{5}}{11} - \frac{2}{\cancel{5}} = -\frac{2}{11}$$

B.
$$-\frac{6}{15} + \frac{10}{22}$$
$$\frac{6}{15} - \frac{10}{22}$$
$$\frac{2}{5} - \frac{5}{11}$$
$$\frac{\cancel{2}}{\cancel{5}} - \frac{\cancel{5}}{11} = \frac{2}{11}$$

D.
$$-\frac{6}{15} + \frac{10}{22}$$
$$\frac{10}{22} - \frac{6}{15}$$
$$\frac{5}{11} - \frac{2}{5}$$
$$\frac{25}{55} - \frac{22}{55} = \frac{3}{55}$$

27. Mr. Garcia needs at least 60 paintbrushes for his art classes. He has 22 paintbrushes already and will buy more paintbrushes in packages of 8. Which inequality can be used to find how many packages of paintbrushes, p , Mr. Garcia needs to buy in order to have at least 60 paintbrushes?

- A. $8p - 22 \leq 60$
- B. $8p - 22 \geq 60$
- C. $8p + 22 \leq 60$
- D. $8p + 22 \geq 60$

28. Use the expression below to answer the question.

$$20 + 8y - 9y - 21$$

Which expression is equivalent?

- A. $2(10 + 4y - 7y - 19)$
 - B. $2(10 + 4y) - 3(3y - 7)$
 - C. $4(5 + 2y - 5y - 17)$
 - D. $4(5 + 2y) - 3(3y + 7)$
29. Mr. Fletcher has a box containing bags of different types of chips. The number of bags and types of chips are shown in the table below.

Bags of Chips

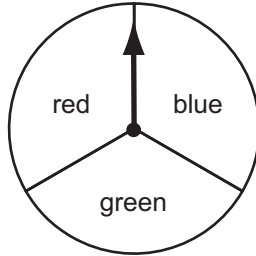
Type of Chips	Number of Bags
plain	3
corn	8
nacho	5
cheddar	4

He will randomly give one bag of chips to each of his 20 students. Nelson is one of the students in Mr. Fletcher's class. Which statement about the likelihood of Nelson receiving different types of chips is true?

- A. Nelson is less likely to receive either plain or nacho chips than cheddar chips.
- B. Nelson is twice as likely to receive cheddar chips as he is to receive corn chips.
- C. Nelson is equally as likely to receive corn chips as he is to receive either plain or nacho chips.
- D. Nelson is more likely to receive nacho chips than plain chips and less likely to receive nacho chips than cheddar chips.

30. Rodney is going to perform an experiment. He will do multiple trials of flipping a coin once and then spinning the spinner shown below once.

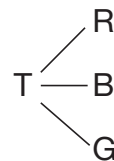
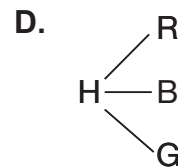
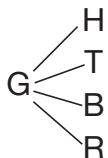
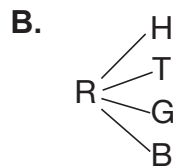
Rodney's Spinner



Rodney needs to create a model to represent his sample space of the experiment. In the model he will use the following abbreviations: H = heads, T = tails, R = red, B = blue, and G = green. Which model could Rodney use to **best** represent the sample space for his experiment?

- A.** HR TR RB
HB TB BG
HG TG GR

- C.** HR HB HG
RH BH GH
TR TB TG
RT BT GT



Multiple-Choice Answer Key

- | | | | |
|-----|----------|-----|----------|
| 1. | <u>C</u> | 16. | <u>A</u> |
| 2. | <u>C</u> | 17. | <u>C</u> |
| 3. | <u>D</u> | 18. | <u>C</u> |
| 4. | <u>C</u> | 19. | <u>B</u> |
| 5. | <u>D</u> | 20. | <u>B</u> |
| 6. | <u>D</u> | 21. | <u>A</u> |
| 7. | <u>B</u> | 22. | <u>B</u> |
| 8. | <u>B</u> | 23. | <u>D</u> |
| 9. | <u>C</u> | 24. | <u>C</u> |
| 10. | <u>A</u> | 25. | <u>C</u> |
| 11. | <u>D</u> | 26. | <u>D</u> |
| 12. | <u>A</u> | 27. | <u>D</u> |
| 13. | <u>D</u> | 28. | <u>D</u> |
| 14. | <u>C</u> | 29. | <u>C</u> |
| 15. | <u>A</u> | 30. | <u>D</u> |