1. A garden is 15-feet long by 5-feet wide. The length and width of the garden will each be increased by the same number of feet. This expression represents the perimeter of the larger garden.

$$(x + 15) + (x + 5) + (x + 15) + (x + 5)$$

Which expressions are equivalent to the expression for the perimeter of the larger garden? Select all that apply.

A. $4x + 40$

B. $2(2x + 20)$

C. $2(x + 15)(x + 5)$

D. $4(x + 15)(x + 5)$

E. $2(x + 15) + 2(x + 5)$

2. Andrew sells treats from his ice cream cart. The items he sells along with their prices are shown in the table. Suppose Andrew sells the quantities of each item given by the variables in the table. What does the expression $1.75a + 2.25b + 2.75a + 2.25c + 1.75\,b$ represent in the context of the problem?

Item	Price	Quantity
Frosty Mango Pop	$1.75	a
Frozen Fruit Yogurt	$2.25	b
Sundae Swirl Cup	$2.75	a
Chocolate Chip Cone	$2.25	c
Fudge Sandwich	$1.75	b

3. The width of the rectangle shown is x inches, and the length is $(3x + 2)$ inches. Write an expression representing the perimeter of the rectangle.

3x + 2

x   x

3x + 2
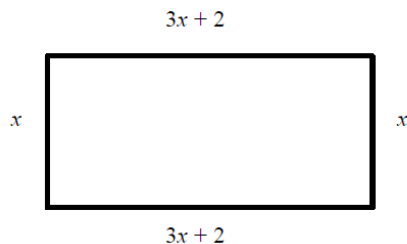
4. Which expressions have products that are positive? Select all that apply.

A. $(-5)(0.2)(-9)$

B. $\left(\frac{2}{3}\right)\left(\frac{3}{2}\right)\left(-\frac{1}{2}\right)$

C. $(6)(-3)(8)(-7)$

D. $\left(-4\frac{1}{3}\right)\left(-\frac{1}{4}\right)\left(-5\frac{1}{2}\right)\left(-\frac{7}{9}\right)$

E. $\left(\frac{5}{6}\right)(-10)\left(3\frac{4}{5}\right)(2)$

F. $(-1.2)(-3.5)(2.7)(-0.8)$

5. In which of these situations would the answer to the question be 0?

A. Teddy jumped into a pool from a diving board 8 feet above the water. He sank 8 feet and then swam straight up to the surface of the water. How many feet did Teddy swim?

B. Jerry left his house and walked 1.5 miles directly west. Then he walked 1.5 directly east. At this point, how many miles was Jerry from his house?

C. A trail begins at an elevation of -50 feet. The trail ends at an elevation of 50 feet. By how many feet does the elevation of the trail change from beginning to end?

D. The low temperature one day was -3^0 Celsius. The high temperature that day was 3^0 Celsius. What is the difference between the low temperature and the high temperature that day?

6. Two numbers, n and p are plotted on the number line shown.
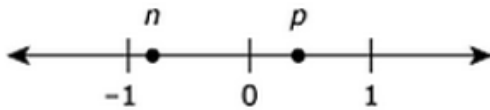
The numbers $n - p, n + p$, and $p - n$ will be plotted on the number line. Identify the true statement.

A. The number $n + p$ has the least value.

B. The number $p - n$ has the greatest value.

C. The numbers $n - p$ and $p - n$ have the same value.

D. The number $n + p$ has the greatest value.

7. Which expressions are equivalent to $-3 - (7.5 + 4)$? Select all that apply.

A. $(7.5 + 4) - 3$ **B.** $-(7.5 + 4) - 3$ **C.** $-(7.5 + 4) + 3$ **D.** $-3 - (4 + 7.5)$

E. $-(3 - 7.5) + 4$ **F.** $-3 + (-7.5 - 4)$ **G.** $-3 + (-7.5 + 4)$

8. Which expressions are equivalent to $-3 \cdot \dfrac{4}{-5}$? Select all that apply.

A. $\dfrac{-3}{-5} \cdot 4$ **B.** $-\dfrac{3}{5} \cdot 4$ **C.** $\dfrac{-3 \cdot 4}{-3 \cdot (-5)}$ **D.** $-3 \cdot 4 \cdot \dfrac{-1}{5}$ **E.** $\dfrac{3}{5} \cdot 4$ **F.** $\dfrac{3 \cdot 4}{5}$

9. At the start of the month, the value of an investment was $48.45. By the end of the month, the value of the investment changed by a loss of $13.80. What was the value, in dollars, of the investment at the end of the month?

10. Evaluate the following expression. $-10 - 6 + 4 \div (-0.5)(-2)$

11. Adonica made snacks for her friends by putting equal amounts of trail mix into small bags. If she started with $3\frac{4}{5}$ cups of trail mix and put $\frac{3}{4}$ cup into each bag, how many complete bags did she make?

12. Kay rented a table at the fair for $30 and set up her station to sell handmade ornaments. Each ornament that she makes costs approximately $2.50 for materials. She sells each ornament for $6.00. Determine the minimum amount of ornaments Kay will need to sell to cover the cost of table rental and materials.

13. Determine which of the following angle measures can create triangle ABC.

A. $m\angle A = 10°, m\angle B = 90°, m\angle C = 40°$

B. $m\angle A = 110°, m\angle B = 30°, m\angle C = 40°$

C. $m\angle A = 80°, m\angle B = 30°, m\angle C = 40°$

D. $m\angle A = 95°, m\angle B = 50°, m\angle C = 50°$

14. Determine if each set of lengths can be used to construct a triangle.

Side Lengths	Yes	No
A. 5 cm, 8 cm, 12 cm	☐	☐
B. 12 in., 12 in., 12 in.	☐	☐
C. 3 ft, 6 ft, 10 ft	☐	☐

15. Marco has a cube and a right square pyramid that are made of clay. He placed both clay figures on a flat surface. Marco will make slices through each figure that are parallel and perpendicular to the flat surface. Which statements are true about the two-dimensional plan sections that **could** result from one of these slices? Select all that apply.

A. A plane section that is triangular could result from one of these slices through the cube.

B. A plane section that is square could result from one of these slices through the cube.

C. A plane section that is rectangular but not square could result from one of these slices through the cube.

D. A plane section that is triangular could result from one of these slices through the pyramid.

E. A plane section that is square could result from one of these slices through the pyramid.

F. A plane section that is rectangular but not square could result from one of these slices through the pyramid.

16. Josey owns a diner that is open every day for breakfast, lunch and dinner. She offers a regular menu and a menu with daily specials. She wanted to estimate the percentage of her customers who order specials. She selected a random sample of 50 customers who had lunch at her diner during a three-month period. She determined that 28% of these customers ordered from the menu with specials. Which statement about Josey's sample is true?

A. The sample is the percentage of customers who order daily specials.

B. The sample might not be representative of the population because it only included lunch customers.

C. The sample shows that exactly 28% of Josey's customers ordered daily specials.

D. No generalizations can be made from this sample, because the sample size of 50 is too small.

17. A researcher wants to determine the mean height of 12-year-old boys in the United States. Which of these surveys might he do to gain the information needed to estimate the average height with confidence?

A. Find the measures of each of the 12-year-old members of the boys' basketball team at the middle school.

B. Find the measures of 100 random 12-year-old boys at an amusement park.

C. Find the measures of each of the 12-year-old boys in the waiting room of a pediatrician's office.

D. Get 50 responses of 12-year-old boys to an online survey generated by a video game company.

18. Data on the number of hours per week of television viewing was collected on a sample of Americans. The graphs below summarize this data for two age groups.
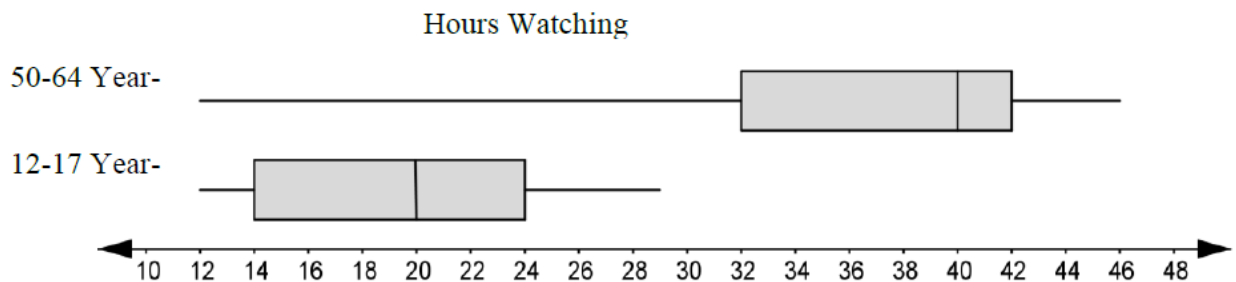
What is the median number of hours of television viewing per week for each age group?

12-17 year age group median [   ]   50-64 year age group median [   ]

19. Which of the following numbers could represent the probability of an even?

	Probability of an Event?	Yes	No
A.	-1		
B.	4.2		
C.	0.6		
D.	0.888		
E.	0		
F.	0.39		
G.	-0.5		

20. For probabilities, an event is likely to occur, unlikely to occur, or neither likely nor unlikely to occur. Determine which of the following probabilities indicates an event is **likely** to occur. Select all that apply.

A. 1

B. $\frac{1}{100}$

C. 0

D. $\frac{1}{2}$

E. $\frac{9}{10}$

21. Ginger will use a random number generator 1,200 times. Each result will be a digit from 1 to 6. Which statement **best** predicts how many times the digit 5 will appear among the 1,200 results?

A. It will appear exactly 200 times.

B. It will appear close to 200 times but probably not exactly 200 times.

C. It will appear exactly 240 times.

D. It will appear close to 240 times but probably not exactly 240 times.

22. For the past three months, Sydney recorded the number of eggs that her hen laid each week. The results are as follows: 4, 3, 5, 4, 6, 4, 5, 4, 3, 5, 7, and 6. Approximate that probability that the hen will lay exactly five eggs next week.

23. Lucy wants to design a computer simulation to study how many spins it takes to land on each color of the wheel shown below once. Using the digits 0 to 9, she will assign a digit to each section of the wheel. Which option describes how the digits can be assigned?
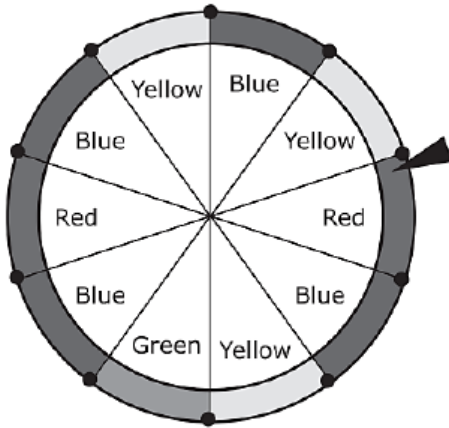
A. Assign the digit 0 to blue; 1 to yellow; 2 to red; and 3 to green.

B. Assign the digit 4 to blue; 3 to yellow; 2 to red; and 1 to green.

C. Assign the digits 0, 1, and 2 to blue; 3, 4, and 5 to yellow; 6, 7, and 8 to red; and 9 to green.

D. Assign the digits 0, 1, 2, and 3 to blue; 4, 5, and 6 to yellow; 7 and 8 to red; and 9 to green.