2024 MATHLETES CHALLENGE

ROUND 2 TEST 2

February 13, 2024

TEAM NAME

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1. Alli and Bert each have some money. Bert has $\frac{5}{4}$ as many dollars as Alli has. Which statement about the amount of money Alli and Bert each have is true?

   A. Alli has more money than Bert has.

   B. Bert has more money than Alli has.

   C. Alli and Bert have the same amount of money.

   D. There is not enough information to compare the amount of money Alli and Bert each have.

2. A relay race is $\frac{1}{8}$ mile long. Each relay team has 4 members. Each team member runs the same distance. How many miles does each team member run?

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

   B. $\frac{1}{4}$

   C. $\frac{1}{12}$

   D. $\frac{1}{32}$

3. Which term does **not** describe a square?

   A. parallelogram
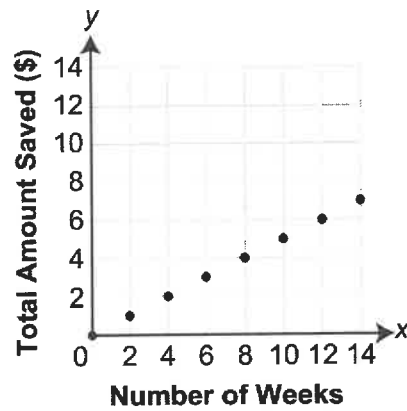
   B. rectangle

   C. rhombus

   D. trapezoid

4.

Bruce saves $1 each week. His brother Len saves $2 each week. They combine their savings each week. Which coordinate grid represents the total amount of money, in dollars, Bruce and Len save over time?
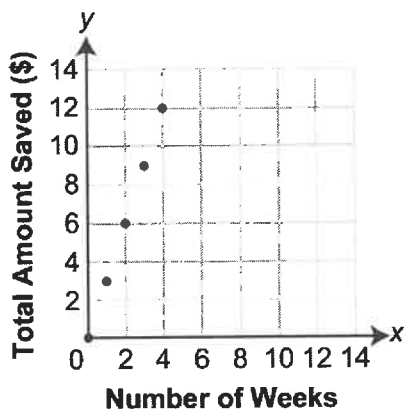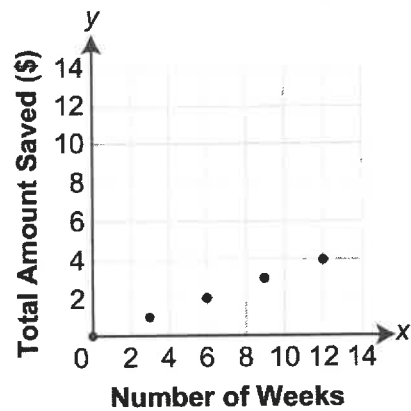
A.
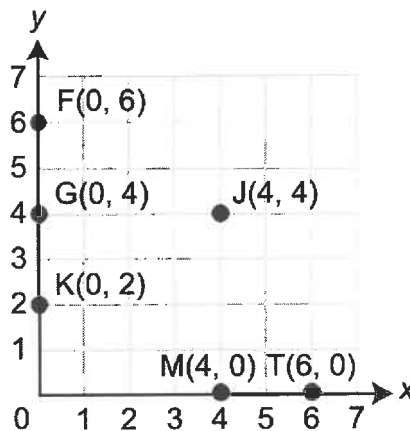**Combined Savings**
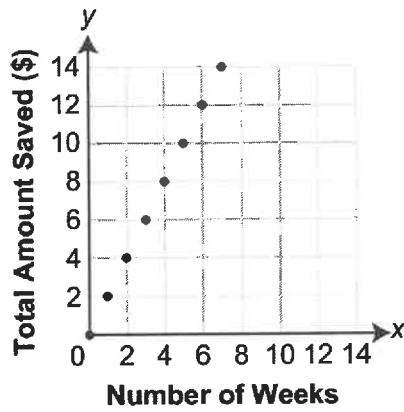
B.
Combined Savings

C.
Combined Savings

D.
Combined Savings

5. A coordinate grid is shown below.

Which two points on the coordinate grid have the same y-coordinate?

A. point G and point K

B. point J and point M

C. point G and point J

D. point F and point T

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6. The graph below represents the amount of coffee brewed (y), in ounces, based on the amount of time (x), in minutes, for which the coffee maker has been brewing coffee.

Coffee Brewed by Coffee Maker
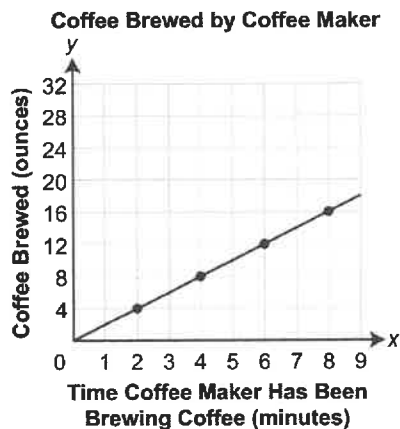
Which ordered pair represents the number of ounces of coffee brewed when the coffee maker has been brewing coffee for 5 minutes?

A. (5, 10)

B. (5, 11)

C. (10, 5)

D. (11, 5)

7. Tracy needs a **gallon** of water, but she has only **quart**-sized, **pint**-sized, and **cup**-sized containers.

   - She first fills one **quart**-sized container with water.
   - She then fills some **pint**-sized containers and some **cup**-sized containers with water.

   How many **pint**-sized containers and **cup**-sized containers could Tracy fill to have a total of **1 gallon** of water in all the containers?

   A. 1 pint-sized container and 2 cup-sized containers

   B. 2 pint-sized containers and 1 cup-sized container

   C. 2 pint-sized containers and 5 cup-sized containers

   D. 5 pint-sized containers and 2 cup-sized containers

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8. A toy company makes solid game pieces out of plastic. Each game piece is made by connecting two right rectangular prisms as shown in the picture below.
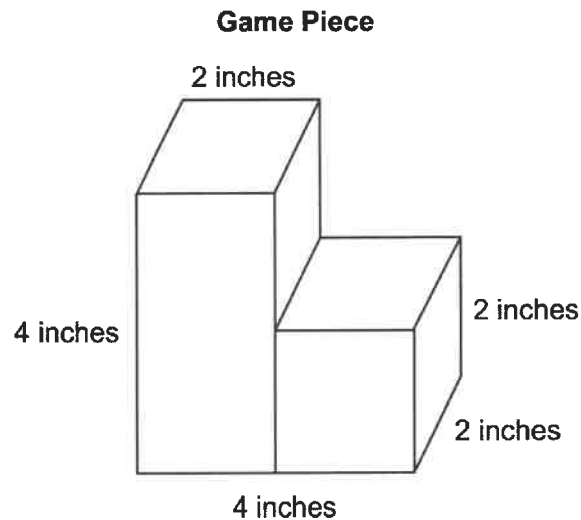
Game Piece

What is the volume, in cubic inches, of plastic needed to make each game piece?

   A. 14

   B. 24

   C. 32

   D. 48

9. A chef made a vegetable dish. She used 63 ounces of lima beans and 18 ounces of corn in the dish. What is the ratio of lima beans to corn in the vegetable dish?

   A. 2:7
   B. 7:9
   C. 7:2
   D. 9:7

10. Mike makes lemonade to sell at the fair. He can sell 64 glasses of lemonade from the 3 full jugs he makes. Each jug is the same size, and each glass contains the same amount of lemonade. Which fraction represents the number of glasses of lemonade Mike sells from each jug?

    A. $\frac{3}{64}$

    B. $\frac{3}{61}$

    C. $\frac{61}{3}$

    D. $\frac{64}{3}$

11. All of the coins in Mr. Mateo's coin collection are either gold or silver. The ratio of the number of gold coins to the number of silver coins in his coin collection is 3:2. What percent of Mr. Mateo's collection is silver coins?

    A. 2%
    B. 20%
    C. 40%
    D. 60%

12. Which equation shows the value of x raised to the 4th power when $x = 3$?

    A. $x^3 = 4 \cdot 4 \cdot 4 = 64$
    B. $x^4 = 4 \cdot 4 \cdot 4 = 64$
    C. $x^3 = 3 \cdot 3 \cdot 3 \cdot 3 = 81$
    D. $x^4 = 3 \cdot 3 \cdot 3 \cdot 3 = 81$

13. An expression is shown below.

$$x^2 + 0.5x$$

What is the value of the expression when x is 3?

    A. 6.53
    B. 7.5
    C. 9.53
    D. 10.5

14. Peter measured the outdoor temperature five times on Thursday. The temperature increased throughout the day until 6 P.M. Peter's measurements, in degrees Fahrenheit (°F), are shown in the table below.

Thursday Temperatures

Time of Day	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.
Temperature (°F)	59.7	62.8	67.5	t	71.3	72.0

Which pair of inequalities represents all the possible temperatures (t), in degrees Fahrenheit (°F), at 4 P.M.?

A. $t < 67.5$ and $t < 71.3$

B. $t > 67.5$ and $t < 71.3$

C. $t < 67.5$ and $t > 71.3$

D. $t > 67.5$ and $t > 71.3$

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15. A cook uses $\frac{2}{3}$ cup of oil to make each batch of pizza dough. Which equation describes the relationship between the number of batches of pizza dough (x) the cook makes and the number of cups of oil (y) the cook uses?

A. $y = \frac{2}{3}x$

B. $y = \frac{3}{2}x$

C. $y = x - \frac{2}{3}$

D. $y = x + \frac{2}{3}$

16. The table below shows the relationship between the amount of gas, in gallons, remaining in the gas tank of Zoey's car and the distance, in miles, she has traveled in the car.

Zoey's Car

Distance (miles)	Gas Remaining (gallons)
120	14
150	13
180	12
210	11

Based on the relationship shown in the table, which statement about Zoey's car is true?

A. As the distance Zoey travels in the car increases by 30 miles, the amount of gas remaining increases by 1 gallon.

B. As the distance Zoey travels in the car increases by 30 miles, the amount of gas remaining decreases by 1 gallon.

C. As the amount of gas remaining increases by 30 gallons, the distance Zoey travels in the car increases by 1 mile.

D. As the amount of gas remaining increases by 30 gallons, the distance Zoey travels in the car decreases by 1 mile.

17. Dave has an aquarium in the shape of a rectangular prism. Rounded to the nearest hundredth, the aquarium can hold 7.48 gallons of water for each cubic foot. The aquarium measures 4 feet by 1.5 feet by 1.75 feet. Which amount is **closest** to the number of gallons of water Dave's aquarium can hold?

A. 14.73

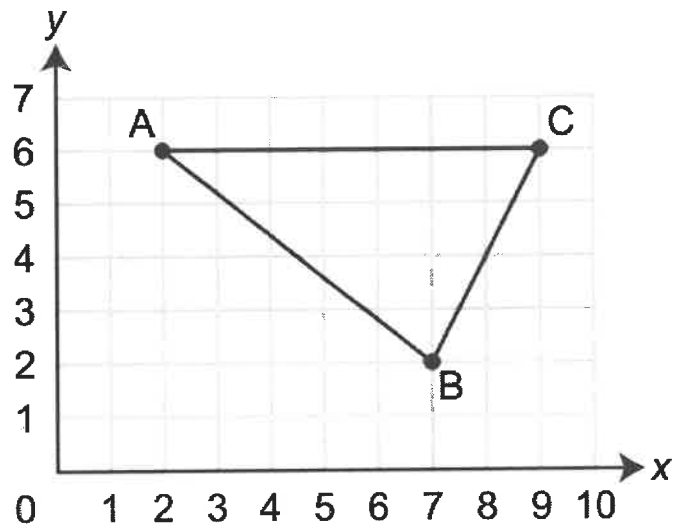B. 17.98

C. 54.23

D. 78.54

18.

A figure is shown below.
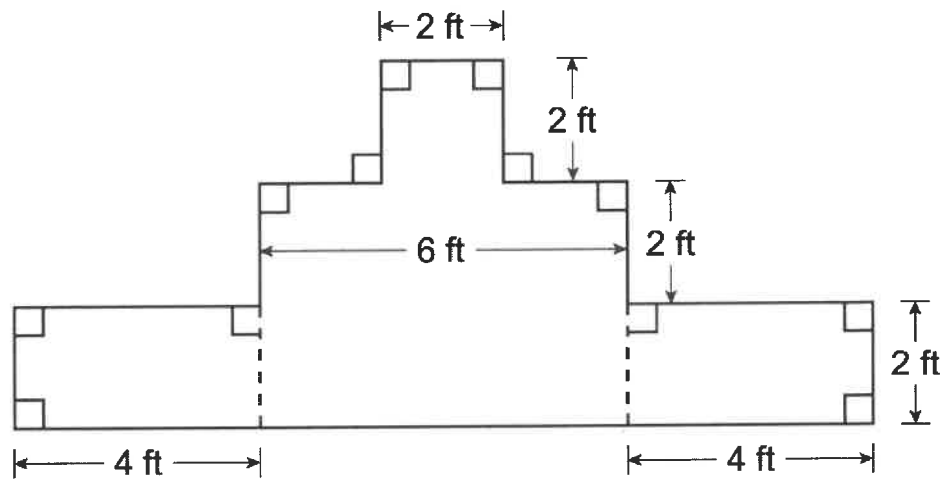
What is the area, in square feet, of the figure?

A. 32

B. 36

C. 42

D. 44

19.

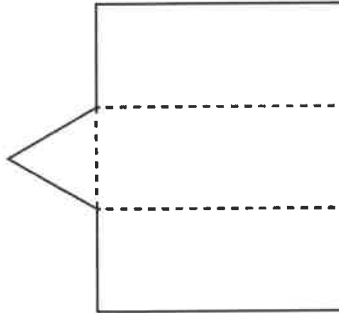Triangle ABC is plotted on the coordinate grid shown below.

What is the area, in square units, of triangle ABC?

A. 14

B. 20

C. 28

D. 40

20.

Carter is making a paper lampshade. To make the shade, he first draws the net shown below on a piece of paper.

He cuts out the net and folds it into a three-dimensional figure. What is the shape of Carter's finished lampshade?

A.   a triangular prism with exactly 1 base covered with paper

B.   a triangular prism with exactly 2 bases covered with paper

C.   a triangular pyramid with exactly 1 base covered with paper

D.   a triangular pyramid with exactly 2 bases covered with paper

END OF ROUND 2 - TEST 2

2024 Mathletes Challenge - Round 2 - Test - 1 - Answers

1. C	11. A
2. D	12. A
3. B	13. C
4. D	14. D
5. D	15. B
6. D	16. D
7. B	17. A
8. C	18. B
9. C	19. D
10. A	20. C

2024 Mathletes Challenge - Round 2 - Test - 2 - Answers

1. B	11. C
2. D	12. D
3. D	13. D
4. C	14. B
5. C	15. A
6. A	16. B
7. D	17. D
8. B	18. D
9. C	19. A
10. D	20. A