Team Name_____

MATHLETES CHALLENGE 2016

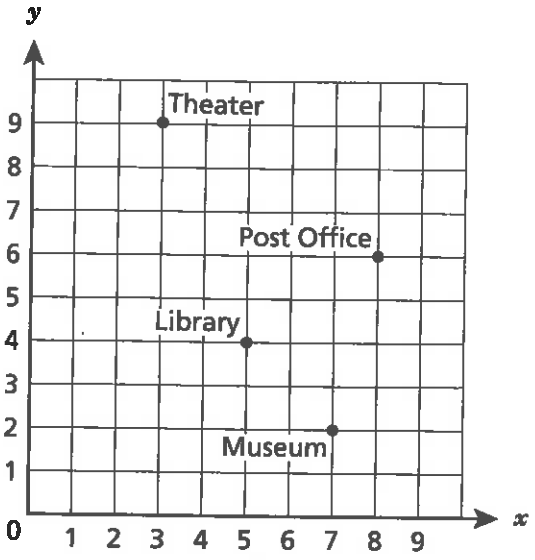
CHAMPIONSHIP

TEST 1

144050109_4

1

The points plotted on the coordinate grid below show different locations in a city. The grid lines represent the city's streets.



The city plans to build a parking lot at the location represented by the coordinates (8, 4). Which building is the shortest driving distance from the parking lot?

A theater

B library

C museum

D post office

2

124050005_4

Madison and Pedro each created a number pattern that began with the number 0.

- Madison used the rule "Add 4."
- Pedro used the rule "Add 12."

Which statement is true about each corresponding pair of numbers in the two patterns?

A Each number in Pedro's pattern is 8 less than the corresponding number in Madison's pattern.

B Each number in Pedro's pattern is 8 more than the corresponding number in Madison's pattern.

C Each number in Pedro's pattern is 3 times less than the corresponding number in Madison's pattern.

D Each number in Pedro's pattern is 3 times more than the corresponding number in Madison's pattern.

134060032_2

3

Arnold's entire workout consisted of 10 minutes of warm-up exercises, 25 minutes of lifting weights, and 15 minutes on the treadmill. What was the ratio of the number of minutes he lifted weights to the total number of minutes of his entire workout?

A 1 : 1

B 1 : 2

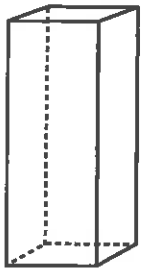
C 3 : 10

D 5 : 8

144060105_1

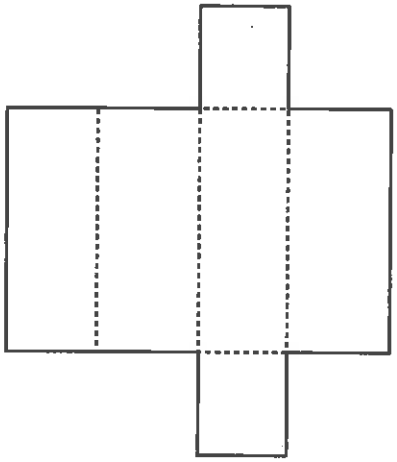
4

A rectangular prism is shown below.

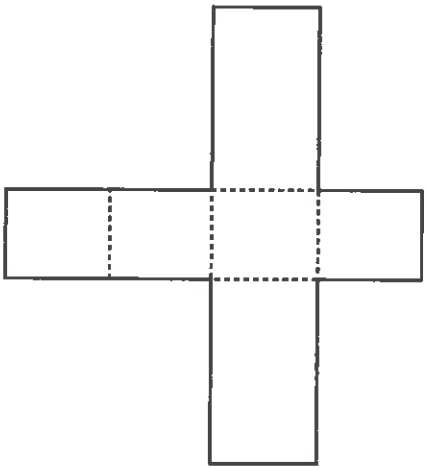


Which figure represents the net of the rectangular prism?

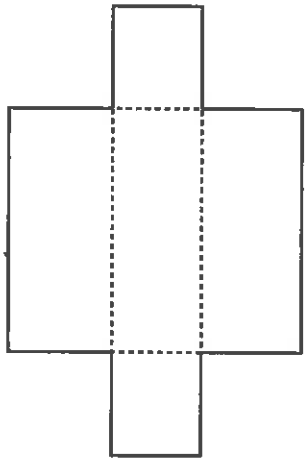
A



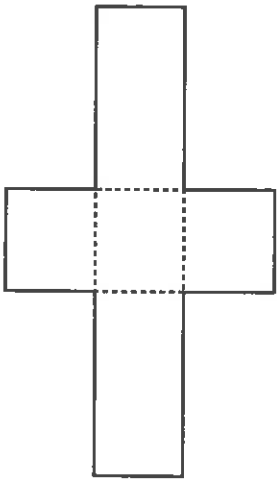
C



B



D



5

134060087_3

A museum has an aquarium in the shape of a right rectangular prism that is 22.9 meters long, 7.5 meters wide, and 4.6 meters high. What is the volume, rounded to the nearest cubic meter, of the aquarium?

A 280

B 623

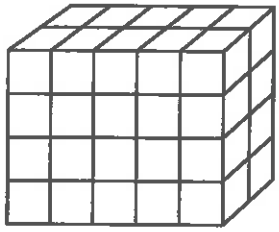
C 790

D 1,288

6

134060088_4

The right rectangular prism shown below is made of equal-sized cubes. The side length of each cube is $2\frac{1}{2}$ inches.



What is the volume, in cubic inches, of the right rectangular prism?

A 50

B 100

C 250

D 625

7

134060041_2

A company paid $48 for 2 cases of printer paper. Each case contained 12 packages of paper. Next month the company's office manager needs to order 180 packages of the same paper. If the price per package does not change, what would be the total cost of next month's order?

A $90

B $360

C $720

D $1,140

8

134060018_4

Which two expressions are equivalent for any value of y?

A $3(3y + 3)$ and $6y + 6$

B $3(3y + 3)$ and $9y + 6$

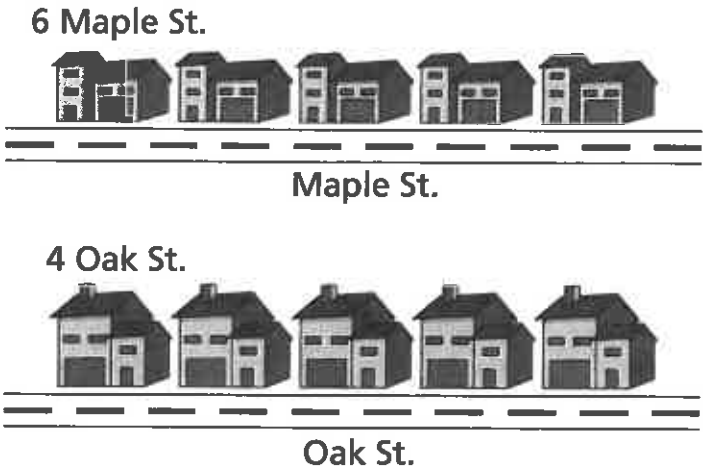
C $9(y + 3)$ and $12 + 9y$

D $9(y + 3)$ and $27 + 9y$

9

144050012_2

The picture below shows the five houses on Maple Street and the five houses on Oak Street.



- Each house number on Maple Street is six more than the house number to its left.
- Each house number on Oak Street is eight more than the house number to its left.

How much greater is the house number of the last house on Oak Street than the house number of the last house on Maple Street?

A 2

B 6

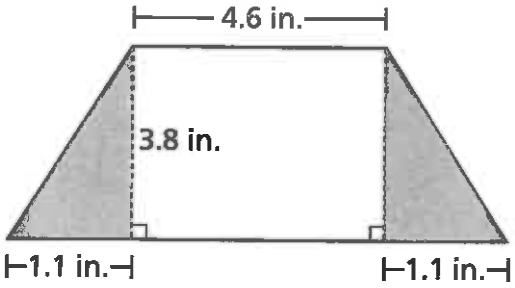
C 8

D 10

10

134060410_2

The trapezoid shown below has an area of 21.66 square inches.



[not drawn to scale]

What is the total area of the shaded sections of the trapezoid?

A 2.09 square inches

B 4.18 square inches

C 4.86 square inches

D 8.74 square inches

124060502_4

A punch recipe requires 2 cups of cranberry juice to make 3 gallons of punch. Using the same recipe, what is the amount of cranberry juice needed for 1 gallon of punch?

A 3 cups

B $1\frac{1}{2}$ cups

C 1 cup

D $\frac{2}{3}$ cup

12

124060610_3

Which expression is equivalent to the expression below?

$$g + g + g + g + g + g$$

A $6 + g$

B g^6

C $6g$

D $\frac{g}{6}$

13

144070005_2

A recipe requires $\frac{1}{3}$ cup of milk for each $\frac{1}{4}$ cup of water. How many cups of water are needed for each cup of milk?

A $\frac{1}{12}$

B $\frac{3}{4}$

C $\frac{11}{12}$

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

14.

144070003_1

Gary buys a $3\frac{1}{2}$-pound bag of cat food every 3 weeks. Gary feeds his cat the same amount of food each day. Which expression can Gary use to determine the number of pounds of cat food his cat eats each year? (1 year = 52 weeks)

A $\frac{7}{2} \times \frac{52}{3}$

B $\frac{7}{2} \times \frac{3}{52}$

C $3\left(\frac{1}{2} \times \frac{3}{52}\right)$

D $3\left(\frac{1}{2} \times \frac{52}{3}\right)$

15.

144070112_3

The school bus Evie rides is scheduled to arrive at her stop at 8:20 a.m. each day. The table below shows the actual arrival times of the bus for several days that were randomly selected over the past few months.

BUS ARRIVAL TIMES (a.m.)

8:21	8:21	8:19	8:20	8:23
8:22	8:20	8:18	8:20	8:18
8:21	8:20	8:19	8:17	8:25
8:20	8:20	8:18	8:19	8:24

Based on these data, what is the probability that the bus will arrive at Evie's stop before 8:20 a.m. tomorrow?

A $\frac{3}{10}$

B $\frac{1}{3}$

C $\frac{7}{20}$

D $\frac{13}{20}$

16.

144070086_2

The mean radius of Earth is 6,371.0 kilometers and the mean radius of Earth's Moon is 1,737.5 kilometers. What is the approximate difference in the mean circumferences, in kilometers, of Earth and Earth's Moon? Round your answer to the nearest tenth of a kilometer.

A 40,030.2

B 29,113.1

C 14,556.6

D 10,917.0

17.

144070036_3

Travis, Jessica, and Robin are collecting donations for the school band. Travis wants to collect 20% more than Jessica, and Robin wants to collect 35% more than Travis. If the students meet their goals and Travis collects $43, how much money did they collect in all?

A $106.78

B $128.60

C $136.88

D $144.99

144060007_3

A high-speed elevator can rise 480 feet in 30 seconds. Which expression represents the rate, in feet per minute, of the elevator?

A 480×30

B $480 \div 30$

C 480×2

D $480 \div 2$

19.

144070104_3

Malika and Adrian prepared containers of potato salad at a deli. Each container was supposed to have a mass of one pound. The manager selected a random sample of containers prepared by each employee to check the mass of each container. The results are shown in the table below.

MASS OF EACH CONTAINER

Malika's Containers (pounds)	Adrian's Containers (pounds)
1.10	1.30
1.08	1.21
1.05	0.79
0.95	0.90
0.98	0.88

Which inference is **best** supported by these data?

A Malika will produce more containers **with** a mass of exactly one pound than Adrian will.

B Adrian will produce more containers with a mass of exactly one pound than Malika **will.**

C Most of Malika's containers **will** have a mass closer to one pound than most of Adrian's containers.

D Most of Adrian's containers **will** have a mass closer to one pound than most of Malika's containers.

20

134070414_3

Sara is playing a board game. The probability that Sara will score a point on her next turn is $\frac{1}{3}$. Which statement describes the probability that Sara **will** score a point on her next turn?

A likely

B certain

C unlikely

D impossible

MATHLETES 2016

Championship – Test 1 – Answer Key

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

Championship – Test 2 – Answer Key

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