Team Name_____

MATHLETES CHALLENGE 2016

Round 2

TEST 2

1 At a carnival, Andrew went on rides and played games.

- Each ride cost $2.
- Each game cost $2.
- Andrew went on 3 rides and played g games.

Andrew wrote the expression below to represent the total amount of money, in dollars, he spent at the carnival.

$$6 + 2g$$

Which of the following is another way Andrew could represent the total amount of money, in dollars, that he spent at the carnival?

A. $2 \times 3g$

B. $2(3 + g)$

C. $4 \times 3g$

D. $4(3 + g)$

2 What is the value of the expression below?

$$-\frac{2}{3} \cdot \frac{5}{-6}$$

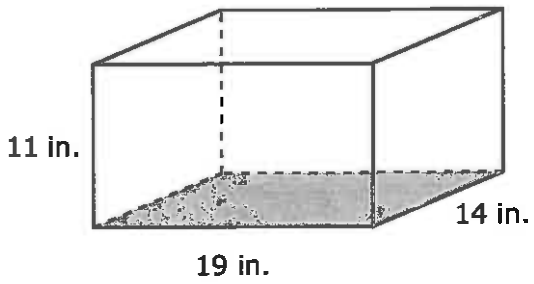
A. $-\frac{4}{5}$

B. $-\frac{5}{9}$

C. $\frac{5}{9}$

D. $\frac{4}{5}$

3 A clear file box shaped like a rectangular prism is modeled below. The shaded part represents one base of the box.



A formula for finding the volume of a rectangular prism is $V = Bh$. Which equation can be used to find B, the area of the shaded base of the box in square inches?

A $B = \frac{1}{2}(19)(14)$

B $B = 19 + 14$

C $B = (19)(14)$

D $B = 2(19) + 2(14)$

4 A plumber charged $12 for 15 minutes of work. At this rate, what would the plumber charge for 1 hour of work?

A. $18

B. $30

C. $48

D. $60

5 Sidney has 4 hats and 2 scarves in a drawer. All the hats are the same size, shape, and material. Both scarves are the same size, shape, and material. The table below shows the colors of Sidney's hats and scarves.

Colors of Sidney's Hats and Scarves

Hats	Scarves
1 blue 1 red 1 tan 1 purple	1 green 1 white

Sidney will pick one hat and one scarf from the drawer without looking. What is the probability that Sidney will pick a blue hat and a white scarf?

A. $\frac{1}{8}$

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

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

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

6 Which of the following numbers has a value that is between 10% and $\frac{1}{9}$?

A. 0.151

B. 0.112

C. 0.108

D. 0.019

7 Serena is conducting a survey to find out which sport the students at her high school like the most. Which of the following groups would be **best** for her to survey to obtain valid data?

A. physical education teachers

B. students at a football game

C. parents at a town meeting

D. students in the cafeteria

8 A building code allows a maximum of 140 people in a meeting room. There is one large table in the room, along with some small tables. When filled, the large table seats 15 people, and the small tables each seat 5 people.

Which of the following can be used to find t, the **greatest** number of small tables that can be filled when the large table is also filled?

A. $5t + 15 \geq 140$

B. $5t + 15 \leq 140$

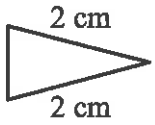
C. $15t + 5 \geq 140$

D. $15t + 5 \leq 140$

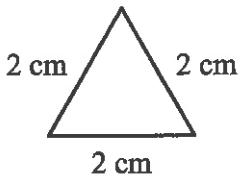
9

Matt drew an obtuse isosceles triangle. Which of the following could be Matt's triangle?

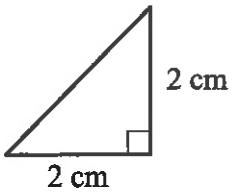
A.



B.



C.



D.

10 A scale rounds the weights of objects to the nearest tenth of a pound. What is 53.864 pounds rounded to the nearest tenth of a pound?

A. 53.8 pounds

B. 53.9 pounds

C. 53.86 pounds

D. 53.87 pounds

11 Silvia filled a watering can with 3.48 liters of water. She used 40 milliliters to water her cactus plant and 150 milliliters to water her rose plant.

What is the total amount of water remaining in the watering can?

A. 158 milliliters

B. 329 milliliters

C. 1,580 milliliters

D. 3,290 milliliters

12 Ms. Montano asked her students to solve the equation shown in the box below.

$$\frac{6}{7} + \frac{5}{6} = n$$

Which of the following is **closest** to the value of n?

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

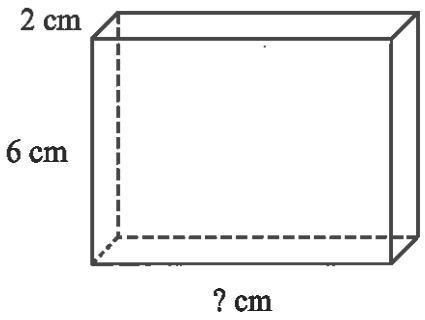
B. $\frac{3}{4}$

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

D. $5\frac{1}{2}$

13 A rectangular prism is shown below.

- The volume is 96 cubic centimeters.
- The height is 6 centimeters.
- The width is 2 centimeters.



What is the length of the rectangular prism?

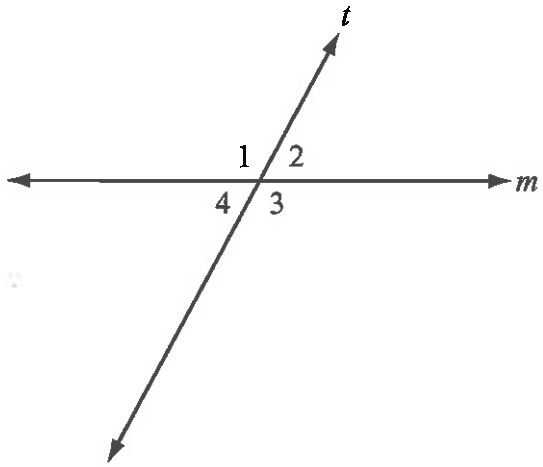
A. 6 cm

B. 8 cm

C. 12 cm

D. 32 cm

14 Line m is intersected by line t, as shown in the diagram below.



Based on the diagram, which of the following equations **must** be true?

A. $m\angle 1 + m\angle 2 = 180°$

B. $m\angle 1 + m\angle 3 = 180°$

C. $m\angle 2 + m\angle 3 = 90°$

D. $m\angle 2 + m\angle 4 = 90°$

15 A pharmacist measured 10 milliliters of medicine. Which of the following is closest to the number of teaspoons of medicine that the pharmacist measured? (1 teaspoon $\approx$ 5 milliliters)

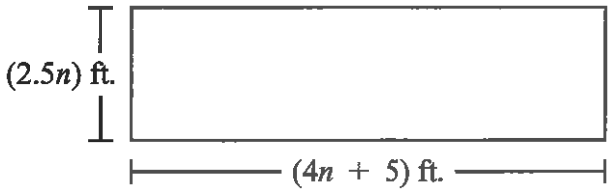
A. 0.5 teaspoon

B. 2 teaspoons

C. 15 teaspoons

D. 50 teaspoons

16 The dimensions, in feet, of a rectangle are represented by expressions, as shown in the diagram below.



Which of the following expressions represents the perimeter, in feet, of the rectangle?

A. $6.5n + 5$

B. $10.5n + 10$

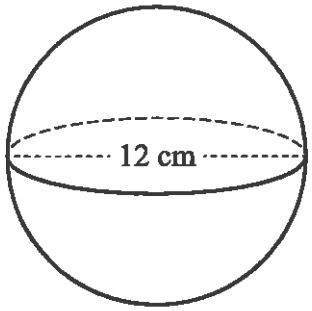
C. $13n + 10$

D. $20n + 5$

17 The formula for the surface area of a sphere that has a radius r is shown in the box below.

$$SA = 4\pi r^2$$

A sphere and one of its dimensions are shown in the diagram below.



What is the surface area, in square centimeters, of the sphere?

A. 48π

B. 96π

C. 144π

D. 576π

18 The table below shows the scores Analisa and Luke earned on four science projects.

Science Project Scores

Project	Analisa	Luke
1	95	90
2	81	84
3	76	95
4	88	91
5	?	?

Analisa and Luke worked on a fifth science project together. They each earned the same score on the project. When the fifth score is included in the table, Analisa's mean score does not change.

Which of the following statements describes how Luke's mean score changes when the fifth score is included in the table?

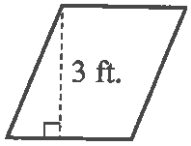
A. It decreases by 2.5.

B. It decreases by 1.

C. It increases by 2.5.

D. It increases by 1.

19 A parallelogram and one of its measurements are shown below.



The area of the parallelogram, in square feet, can be represented by the expression $12n$.

Which of the following expressions represents the base, in feet, of the parallelogram?

A. $4n$

B. 4

C. $36n$

D. 36

20 Verndale had a total of 40.5 inches of rain this year. This year's total was 2.62 inches greater than last year's total.

What was the total amount of rain that Verndale had last year?

A. 1.43 inches

B. 2.63 inches

C. 37.88 inches

D. 38.12 inches

MATHLETES 2016

Round 2 – Test 1 – Answer Key

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

Round 2 – Test 2 – Answer Key

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