2023 MATHLETES CHALLENGE

ROUND 1 TEST 2

2023 Mathletes Challenge Round 1

Test 2 - You will have 20 minutes to complete this 20 question test. Good luck!

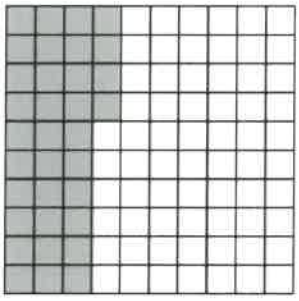
* Required

1. What is your team name? Example: Terry Team 2 * 0 points

Round 1 Test - 2 of 2

2. Question 1 * 1 point

The 10-by-10 grid shown below represents one whole.



The decimal number q is represented by the shaded part of the grid. Which statement correctly compares the value of q with two other numbers?

A. The value of q is greater than 0.1 and less than 0.305.
B. The value of q is greater than 0.305 and less than 0.35.
C. The value of q is greater than 0.35 and less than 0.675.
D. The value of q is greater than 0.675 and less than 3.5.

Mark only one oval.

- ◯ A
- ◯ B
- ◯ C
- ◯ D

3. Question 2 * 1 point

Four number sentences are shown below, some of which are not true.

436.04 = 444.03

236.76 = 235.84

505.64 > 505.55

325.64 > 325.54

Each number is rounded to the nearest tenth. The comparison symbol in each number sentence remains the same. Which number sentence is rounded correctly and is true?

A. The number sentence 436.04 = 444.03 becomes 440 = 440.
B. The number sentence 236.76 = 235.84 becomes 236.8 = 235.8.
C. The number sentence 505.64 > 505.55 becomes 505.6 > 505.5.
D. The number sentence 325.64 > 325.54 becomes 325.6 > 325.5.

Mark only one oval.

- A
- B
- C
- D

4. Question 3 *

1 point

Serena has one large and one small beehive. Information about the hives and the bees living in each hive is listed below.

- There are 1,050 bees living in the large hive.
- The number of bees living in the small hive is 0.7 times the number of bees living in the large hive.
- The bees living in the small hive visit 2,500 flowers each day.
- The bees living in the large hive visit 0.8 times the number of flowers visited each day by the bees living in the small hive.

Which statement about the bees is true?

A. There are 8,400 bees living in the two hives.

B. There are 1,057 bees living in the small hive.

C. The bees living in the two hives visit 2,508 flowers each day.

D. The bees living in the large hive visit 2,000 flowers each day.

Mark only one oval.

- A
- B
- C
- D

5. Question 4 * 1 point

Which story matches the expression $(18 - 3 \times 4) \div 2$?

A. Ed had $18. He bought a pen for $3 and 4 pencils for $2 each.
B. Ed had $18. He bought 3 pens for $4 each and gave $2 to his sister.
C. Ed had $18. He gave half the money away and then bought 3 pens for $4 each.
D. Ed had $18. He bought 3 pens for $4 each and then shared the rest of the money equally with his sister.

Mark only one oval.

- ◯ A
- ◯ B
- ◯ C
- ◯ D

6. Question 5 * 1 point

The first five values in a number pattern are represented by the expressions below.

4×1 4×2 4×3 4×4 4×5

The pattern continues. How many values in the pattern are **less** than 100?

A. 19
B. 24
C. 25
D. 99

Mark only one oval.

- ◯ A
- ◯ B
- ◯ C
- ◯ D

7. Question 6 * 1 point

Julian has 4 videos. Each video is the same length. The total time for all of the videos is 300 **seconds**. How many **minutes** long is each video?

A. 0.8 minute
B. 1.25 minutes
C. 20 minutes
D. 75 minutes

Mark only one oval.

- A
- B
- C
- D

8. Question 7 *

1 point

A runner drinks $\frac{1}{2}$ **pint** of water during a race. How many **gallons** of water does the runner drink during the race?

A. $\frac{1}{16}$ gallon

B. $\frac{1}{10}$ gallon

C. $\frac{1}{8}$ gallon

D. $\frac{1}{4}$ gallon

Mark only one oval.

- ◯ A
- ◯ B
- ◯ C
- ◯ D

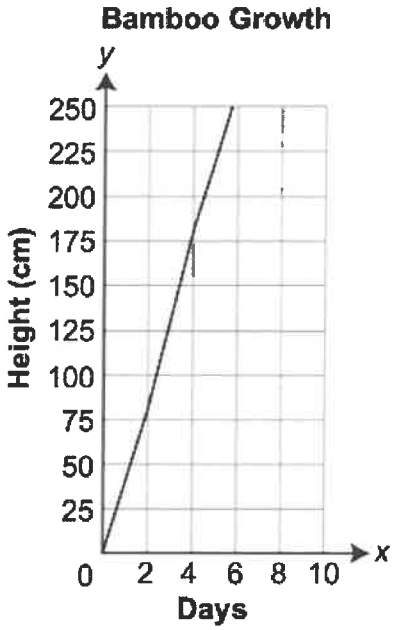
9. Question 8 * 1 point

The table below shows the recorded height of a bamboo plant after several days of growth.

Bamboo Growth

Days	2	4	6	8	10
Height (cm)	82	181	264	318	348

The line graph below was made to display the data from the table, but not all the data fit on the graph.



Which change would allow all the data from the table to fit on the graph without changing the size of the grid?

A. for the *x*-axis, using a scale of 1 instead of a scale of 2

B. for the *x*-axis, using a scale of 3 instead of a scale of 2

C. for the *y*-axis, using a scale of 15 instead of a scale of 25

D. for the *y*-axis, using a scale of 35 instead of a scale of 25

Mark only one oval.

- A
- B
- C
- D

10. Question 9 * 1 point

The table below shows the number of pizzas served during lunch at a school cafeteria over three days.

Pizzas Served in Cafeteria

Day	Number of Pizzas Served
Wednesday	$2\frac{1}{2}$
Thursday	3
Friday	6

Which pictograph represents the data shown in the table?

A.

Pizzas Served in Cafeteria

Day	Number of Pizzas Served
Wednesday	
Thursday	
Friday	

Key: = 2 pizzas

B.

Pizzas Served in Cafeteria

Day	Number of Pizzas Served
Wednesday	
Thursday	
Friday	

Key: = 2 pizzas

C.

Pizzas Served in Cafeteria

Day	Number of Pizzas Served
Wednesday	
Thursday	
Friday	

Key: = 2 pizzas

D.

Pizzas Served in Cafeteria

Day	Number of Pizzas Served
Wednesday	
Thursday	
Friday	

Key: = 2 pizzas

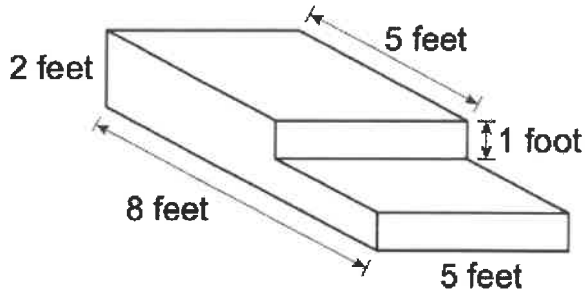
Mark only one oval.

- A
- B
- C
- D

11. Question 10 *

1 point

A set of stairs is being made from concrete. A picture of the stairs is shown below.



What is the volume, in cubic feet, of the set of stairs?

A. 21
B. 65
C. 80
D. 120

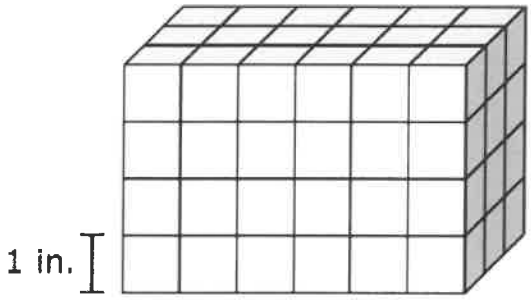
Mark only one oval.

- A
- B
- C
- D

12. Question 11 *

1 point

A right rectangular prism is made of cubes, with no gaps or overlaps. Each cube has an edge length of 1 inch, as shown.



Which of the following expressions can be used to find the volume, in cubic inches, of the prism?

Ⓐ $6 + 4 + 3$

Ⓑ $6 \times 4 \times 3$

Ⓒ $(6 \times 4) + 3$

Ⓓ $6 \times (4 + 3)$

Mark only one oval.

- ◯ A
- ◯ B
- ◯ C
- ◯ D

13. Question 12 * 1 point

Which of the following statements is correct?

Ⓐ The value of $\frac{6}{7} \times 9$ is less than 9 because $\frac{6}{7}$ is less than 1.

Ⓑ The value of $\frac{6}{7} \times 9$ is greater than $\frac{6}{7}$ because 9 is less than 1.

Ⓒ The value of $\frac{6}{7} \times 9$ is less than $\frac{6}{7}$ because 9 is greater than 1.

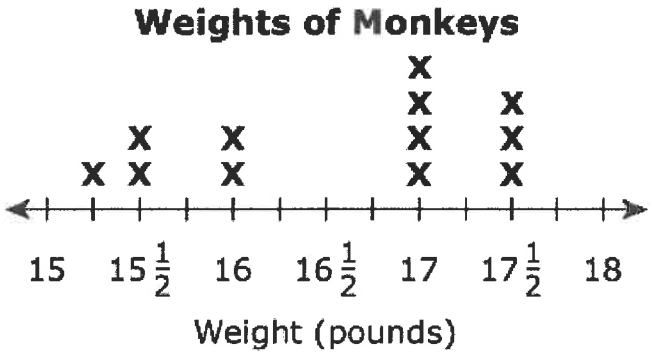
Ⓓ The value of $\frac{6}{7} \times 9$ is greater than 9 because $\frac{6}{7}$ is greater than 1.

Mark only one oval.

- A
- B
- C
- D

14. Question 13 * 1 point

A zookeeper weighed some monkeys and recorded their weights, in pounds, on this line plot.



What is the difference, in pounds, between the monkey with the greatest weight and the monkey with the least weight?

Ⓐ $1\frac{3}{4}$

Ⓑ $2\frac{1}{4}$

Ⓒ $2\frac{1}{2}$

Ⓓ 3

Mark only one oval.

- ◯ A
- ◯ B
- ◯ C
- ◯ D

15. Question 14 * 1 point

Matthew bought $\frac{1}{3}$ pound of cheese. He put all the cheese on 2 sandwiches. Matthew put the same amount of cheese on each sandwich.

Which of the following equations shows the amount of cheese, in pounds, on each sandwich?

Ⓐ $\frac{1}{3} \times 6 = 2$

Ⓑ $\frac{1}{3} \div 2 = \frac{1}{6}$

Ⓒ $2 \times \frac{1}{3} = \frac{2}{3}$

Ⓓ $2 \div \frac{1}{3} = 6$

Mark only one oval.

- A
- B
- C
- D

16. Question 15 * 1 point

Which of the following shows the measurements ordered from **least** to **greatest** length?

Ⓐ | 35 inches | 2 feet | $3\frac{1}{2}$ feet | 1 yard |

Ⓑ | 35 inches | 2 feet | 1 yard | $3\frac{1}{2}$ feet |

Ⓒ | 2 feet | 35 inches | $3\frac{1}{2}$ feet | 1 yard |

Ⓓ | 2 feet | 35 inches | 1 yard | $3\frac{1}{2}$ feet |

Mark only one oval.

- ◯ A
- ◯ B
- ◯ C
- ◯ D

17. Question 16 * 1 point

A recipe for cookies requires these ingredients:

- 3 cups of flour
- 1 cup of brown sugar
- 2 cups of coconut

A $\frac{1}{4}$-cup measuring scoop will be used to measure each ingredient.

Which of the following tables shows the correct number of $\frac{1}{4}$-cup scoops for each ingredient needed to make the cookies?

Ⓐ **Cookie Recipe**

Ingredients	Number of $\frac{1}{4}$-Cup Scoops
3 cups of flour	$\frac{3}{4}$
1 cup of brown sugar	$\frac{1}{4}$
2 cups of coconut	$\frac{2}{4}$

Ⓑ **Cookie Recipe**

Ingredients	Number of $\frac{1}{4}$-Cup Scoops
3 cups of flour	$\frac{3}{4}$
1 cup of brown sugar	4
2 cups of coconut	2

Ⓒ **Cookie Recipe**

Ingredients	Number of $\frac{1}{4}$-Cup Scoops
3 cups of flour	12
1 cup of brown sugar	4
2 cups of coconut	8

Ⓓ **Cookie Recipe**

Ingredients	Number of $\frac{1}{4}$-Cup Scoops
3 cups of flour	6
1 cup of brown sugar	2
2 cups of coconut	4

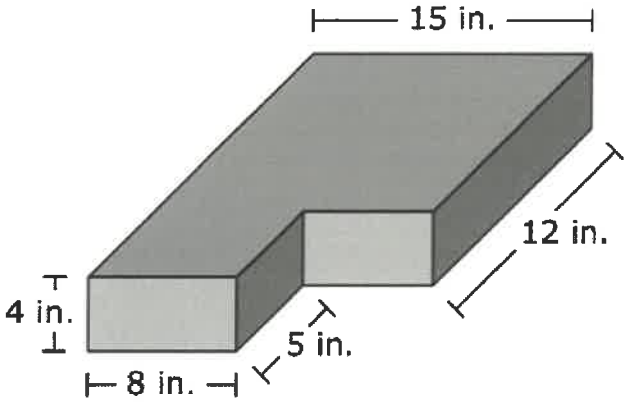
Mark only one oval.

- ◯ A
- ◯ B
- ◯ C

D

18. Question 17 * 1 point

A three-dimensional figure is composed of two rectangular prisms. The figure and some of its dimensions are shown.



What is the volume, in cubic inches, of the three-dimensional figure?

Ⓐ 880

Ⓑ 720

Ⓒ 496

Ⓓ 160

Mark only one oval.

- A
- B
- C
- D

19. Question 18 * 1 point

Beatriz hiked on Saturday and Sunday.

- She hiked a distance of $3\frac{3}{5}$ miles on Saturday.
- She hiked a distance of $2\frac{2}{3}$ miles on Sunday.

What is the total distance Beatriz hiked on both days?

Ⓐ $5\frac{1}{5}$ miles

Ⓑ $5\frac{5}{8}$ miles

Ⓒ $6\frac{2}{3}$ miles

Ⓓ $6\frac{4}{15}$ miles

Mark only one oval.

- A
- B
- C
- D

20. Question 19 * 1 point

Compute:

$$8\frac{4}{5} - 3\frac{3}{4}$$

Ⓐ $5\frac{1}{1}$

Ⓑ $5\frac{1}{5}$

Ⓒ $5\frac{1}{9}$

Ⓓ $5\frac{1}{20}$

Mark only one oval.

- A
- B
- C
- D

21. Question 20 * 1 point

Which of the following statements are correct?

Select the **two** correct answers.

Ⓐ The value of the 3 in 4,358 is ten times the value of the 3 in 6,932.

Ⓑ The value of the 3 in 4,358 is one-tenth the value of the 3 in 6,932.

Ⓒ The value of the 3 in 4,358 is one-hundredth the value of the 3 in 6,932.

Ⓓ The value of the 3 in 1,783 is ten times the value of the 3 in 6,932.

Ⓔ The value of the 3 in 1,783 is one-tenth the value of the 3 in 6,932.

Ⓕ The value of the 3 in 1,783 is one-hundredth the value of the 3 in 6,932.

Mark only ~~one~~ two ovals.

- ◯ A
- ◯ B
- ◯ C
- ◯ D
- ◯ E
- ◯ F

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2023 MATHLETES CHALLENGE

ROUND 1 TEST 2

KEY

2023 Mathletes Challenge Round 1

Test 2 - You will have 20 minutes to complete this 20 question test. Good luck!

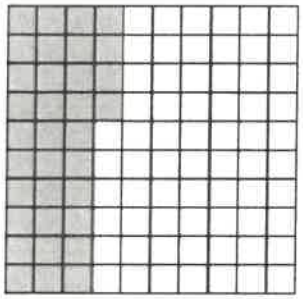
* Required

1. What is your team name? Example: Terry Team 2 * 0 points

Round 1 Test - 2 of 2

2. Question 1 * 1 point

The 10-by-10 grid shown below represents one whole.



The decimal number q is represented by the shaded part of the grid. Which statement correctly compares the value of q with two other numbers?

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C. The value of q is greater than 0.35 and less than 0.675.
D. The value of q is greater than 0.675 and less than 3.5.

Mark only one oval.

- [ ] A
- [x] B
- [ ] C
- [ ] D

3. Question 2 * 1 point

Four number sentences are shown below, some of which are not true.

436.04 = 444.03

236.76 = 235.84

505.64 > 505.55

325.64 > 325.54

Each number is rounded to the nearest tenth. The comparison symbol in each number sentence remains the same. Which number sentence is rounded correctly and is true?

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D. The number sentence 325.64 > 325.54 becomes 325.6 > 325.5.

Mark only one oval.

- ( ) A
- ( ) B
- ( ) C
- (●) D

4. Question 3 * 1 point

Serena has one large and one small beehive. Information about the hives and the bees living in each hive is listed below.

- There are 1,050 bees living in the large hive.
- The number of bees living in the small hive is 0.7 times the number of bees living in the large hive.
- The bees living in the small hive visit 2,500 flowers each day.
- The bees living in the large hive visit 0.8 times the number of flowers visited each day by the bees living in the small hive.

Which statement about the bees is true?

A. There are 8,400 bees living in the two hives.

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D. The bees living in the large hive visit 2,000 flowers each day.

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5. Question 4 * 1 point

Which story matches the expression $(18 - 3 \times 4) \div 2$?

A. Ed had $18. He bought a pen for $3 and 4 pencils for $2 each.
B. Ed had $18. He bought 3 pens for $4 each and gave $2 to his sister.
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- ( ) A
- ( ) B
- ( ) C
- (●) D

6. Question 5 * 1 point

The first five values in a number pattern are represented by the expressions below.

4×1 4×2 4×3 4×4 4×5

The pattern continues. How many values in the pattern are **less** than 100?

A. 19
B. 24
C. 25
D. 99

Mark only one oval.

- ( ) A
- (●) B
- ( ) C
- ( ) D

7. Question 6 *

1 point

Julian has 4 videos. Each video is the same length. The total time for all of the videos is 300 **seconds**. How many **minutes** long is each video?

A. 0.8 minute
B. 1.25 minutes
C. 20 minutes
D. 75 minutes

Mark only one oval.

- [ ] A
- [x] B
- [ ] C
- [ ] D

8. Question 7 *

1 point

A runner drinks $\frac{1}{2}$ **pint** of water during a race. How many **gallons** of water does the runner drink during the race?

A. $\frac{1}{16}$ gallon

B. $\frac{1}{10}$ gallon

C. $\frac{1}{8}$ gallon

D. $\frac{1}{4}$ gallon

Mark only one oval.

- [x] A
- [ ] B
- [ ] C
- [ ] D

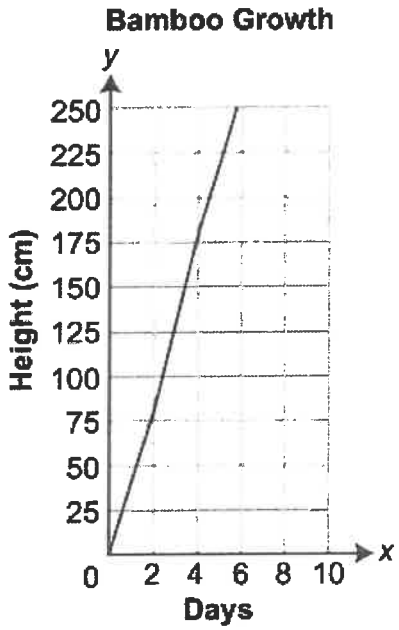
9. Question 8 * 1 point

The table below shows the recorded height of a bamboo plant after several days of growth.

Bamboo Growth

Days	2	4	6	8	10
Height (cm)	82	181	264	318	348

The line graph below was made to display the data from the table, but not all the data fit on the graph.



Which change would allow all the data from the table to fit on the graph without changing the size of the grid?

A. for the *x*-axis, using a scale of 1 instead of a scale of 2
B. for the *x*-axis, using a scale of 3 instead of a scale of 2
C. for the *y*-axis, using a scale of 15 instead of a scale of 25
D. for the *y*-axis, using a scale of 35 instead of a scale of 25

Mark only one oval.

- ( ) A
- ( ) B
- ( ) C
- (●) D

10. Question 9 * 1 point

The table below shows the number of pizzas served during lunch at a school cafeteria over three days.

Pizzas Served in Cafeteria

Day	Number of Pizzas Served
Wednesday	$2\frac{1}{2}$
Thursday	3
Friday	6

Which pictograph represents the data shown in the table?

A.

Pizzas Served in Cafeteria

Day	Number of Pizzas Served
Wednesday	
Thursday	
Friday	

Key: = 2 pizzas

B.

Pizzas Served in Cafeteria

Day	Number of Pizzas Served
Wednesday	
Thursday	
Friday	

Key: = 2 pizzas

C.

Pizzas Served in Cafeteria

Day	Number of Pizzas Served
Wednesday	
Thursday	
Friday	

Key: = 2 pizzas

D.

Pizzas Served in Cafeteria

Day	Number of Pizzas Served
Wednesday	
Thursday	
Friday	

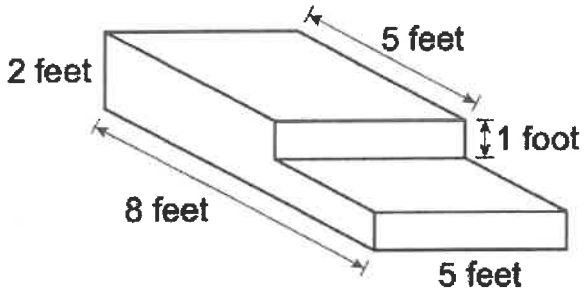
Key: = 2 pizzas

Mark only one oval.

- ( ) A
- ( ) B
- ( ) C
- (●) D

11. Question 10 * 1 point

A set of stairs is being made from concrete. A picture of the stairs is shown below.



What is the volume, in cubic feet, of the set of stairs?

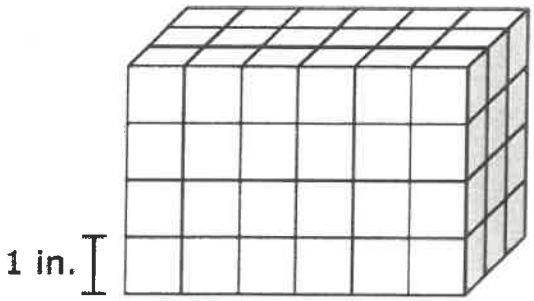
A. 21
B. 65
C. 80
D. 120

Mark only one oval.

- ( ) A
- (B) B
- ( ) C
- ( ) D

12. Question 11 * 1 point

A right rectangular prism is made of cubes, with no gaps or overlaps. Each cube has an edge length of 1 inch, as shown.



Which of the following expressions can be used to find the volume, in cubic inches, of the prism?

Ⓐ $6 + 4 + 3$

Ⓑ $6 \times 4 \times 3$

Ⓒ $(6 \times 4) + 3$

Ⓓ $6 \times (4 + 3)$

Mark only one oval.

- ( ) A
- (B) B
- ( ) C
- ( ) D

13. Question 12 * 1 point

Which of the following statements is correct?

Ⓐ The value of $\frac{6}{7} \times 9$ is less than 9 because $\frac{6}{7}$ is less than 1.

Ⓑ The value of $\frac{6}{7} \times 9$ is greater than $\frac{6}{7}$ because 9 is less than 1.

Ⓒ The value of $\frac{6}{7} \times 9$ is less than $\frac{6}{7}$ because 9 is greater than 1.

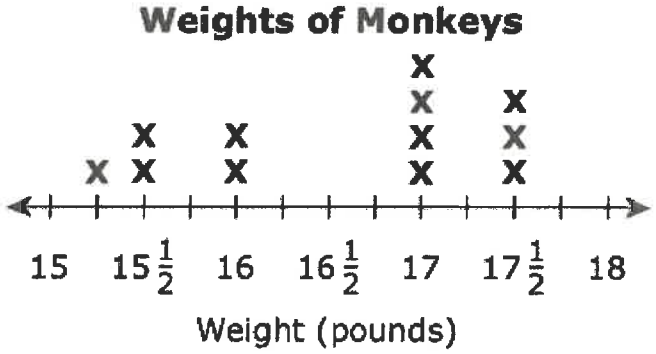
Ⓓ The value of $\frac{6}{7} \times 9$ is greater than 9 because $\frac{6}{7}$ is greater than 1.

Mark only one oval.

- [x] A
- [ ] B
- [ ] C
- [ ] D

14. Question 13 * 1 point

A zookeeper weighed some monkeys and recorded their weights, in pounds, on this line plot.



What is the difference, in pounds, between the monkey with the greatest weight and the monkey with the least weight?

Ⓐ $1\frac{3}{4}$

Ⓑ $2\frac{1}{4}$

Ⓒ $2\frac{1}{2}$

Ⓓ 3

Mark only one oval.

- ( ) A
- (B) B
- ( ) C
- ( ) D

15. Question 14 * 1 point

Matthew bought $\frac{1}{3}$ pound of cheese. He put all the cheese on 2 sandwiches. Matthew put the same amount of cheese on each sandwich.

Which of the following equations shows the amount of cheese, in pounds, on each sandwich?

Ⓐ $\frac{1}{3} \times 6 = 2$

Ⓑ $\frac{1}{3} \div 2 = \frac{1}{6}$

Ⓒ $2 \times \frac{1}{3} = \frac{2}{3}$

Ⓓ $2 \div \frac{1}{3} = 6$

Mark only one oval.

- ◯ A
- ● B
- ◯ C
- ◯ D

16. Question 15 *

1 point

Which of the following shows the measurements ordered from **least** to **greatest** length?

Ⓐ | 35 inches | 2 feet | $3\frac{1}{2}$ feet | 1 yard |

Ⓑ | 35 inches | 2 feet | 1 yard | $3\frac{1}{2}$ feet |

Ⓒ | 2 feet | 35 inches | $3\frac{1}{2}$ feet | 1 yard |

Ⓓ | 2 feet | 35 inches | 1 yard | $3\frac{1}{2}$ feet |

Mark only one oval.

- ( ) A
- ( ) B
- ( ) C
- (●) D

17. Question 16 * 1 point

A recipe for cookies requires these ingredients:

- 3 cups of flour
- 1 cup of brown sugar
- 2 cups of coconut

A $\frac{1}{4}$-cup measuring scoop will be used to measure each ingredient.

Which of the following tables shows the correct number of $\frac{1}{4}$-cup scoops for each ingredient needed to make the cookies?

Ⓐ **Cookie Recipe**

Ingredients	Number of $\frac{1}{4}$-Cup Scoops
3 cups of flour	$\frac{3}{4}$
1 cup of brown sugar	$\frac{1}{4}$
2 cups of coconut	$\frac{2}{4}$

Ⓑ **Cookie Recipe**

Ingredients	Number of $\frac{1}{4}$-Cup Scoops
3 cups of flour	$\frac{3}{4}$
1 cup of brown sugar	4
2 cups of coconut	2

Ⓒ **Cookie Recipe**

Ingredients	Number of $\frac{1}{4}$-Cup Scoops
3 cups of flour	12
1 cup of brown sugar	4
2 cups of coconut	8

Ⓓ **Cookie Recipe**

Ingredients	Number of $\frac{1}{4}$-Cup Scoops
3 cups of flour	6
1 cup of brown sugar	2
2 cups of coconut	4

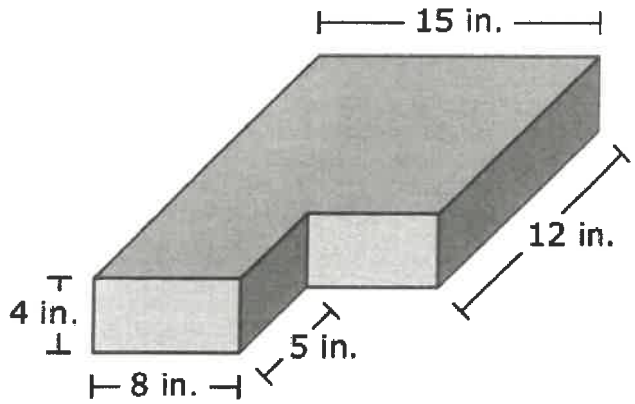
Mark only one oval.

- ( ) A
- ( ) B
- (●) C

D

18. Question 17 * 1 point

A three-dimensional figure is composed of two rectangular prisms. The figure and some of its dimensions are shown.



What is the volume, in cubic inches, of the three-dimensional figure?

Ⓐ 880

Ⓑ 720

Ⓒ 496

Ⓓ 160

Mark only one oval.

A

B

C

D

19. Question 18 * 1 point

Beatriz hiked on Saturday and Sunday.

- She hiked a distance of $3\frac{3}{5}$ miles on Saturday.
- She hiked a distance of $2\frac{2}{3}$ miles on Sunday.

What is the total distance Beatriz hiked on both days?

Ⓐ $5\frac{1}{5}$ miles

Ⓑ $5\frac{5}{8}$ miles

Ⓒ $6\frac{2}{3}$ miles

Ⓓ $6\frac{4}{15}$ miles

Mark only one oval.

- A
- B
- C
- D

20. Question 19 * 1 point

Compute:

$$8\frac{4}{5} - 3\frac{3}{4}$$

Ⓐ $5\frac{1}{1}$

Ⓑ $5\frac{1}{5}$

Ⓒ $5\frac{1}{9}$

Ⓓ $5\frac{1}{20}$

Mark only one oval.

- ◯ A
- ◯ B
- ◯ C
- ● D

21. Question 20 * 1 point

Which of the following statements are correct?

Select the **two** correct answers.

Ⓐ The value of the 3 in 4,358 is ten times the value of the 3 in 6,932.

Ⓑ The value of the 3 in 4,358 is one-tenth the value of the 3 in 6,932.

Ⓒ The value of the 3 in 4,358 is one-hundredth the value of the 3 in 6,932.

Ⓓ The value of the 3 in 1,783 is ten times the value of the 3 in 6,932.

Ⓔ The value of the 3 in 1,783 is one-tenth the value of the 3 in 6,932.

Ⓕ The value of the 3 in 1,783 is one-hundredth the value of the 3 in 6,932.

Mark only ~~one~~ two *ovals.*

- [x] A
- [ ] B
- [ ] C
- [ ] D
- [x] E
- [ ] F

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