2025 Mathletes Challenge - Round 1 - Test 1

1.

Add: $\dfrac{7}{8} + \dfrac{11}{5}$

Ⓐ $1\dfrac{5}{13}$

Ⓑ $1\dfrac{37}{40}$

Ⓒ $2\dfrac{31}{40}$

Ⓓ $3\dfrac{3}{40}$

2.

The mass of a rock is 52.17 grams. The mass of a bolt, in grams, includes a digit that is $\dfrac{1}{10}$ the value of the 1 in the mass of the rock. Which value could be the mass, in grams, of the bolt?

Ⓐ 11.27

Ⓑ 18.27

Ⓒ 18.71

Ⓓ 20.17

3.

A scientist records the diameter of a strand of hair as 0.00754 centimeters. To the nearest thousandth, what is the rounded diameter of this strand of hair?

Ⓐ 0.007 cm

Ⓑ 0.0075 cm

Ⓒ 0.008 cm

Ⓓ 0.01 cm

4.

Two deli workers cut a 9-kilogram block of cheese in half. The first worker divides his half into 15 equal packages. The second worker divides the other half into 18 equal packages. What is the difference in the mass, in kilograms, of the two sizes of packages?

Ⓐ 0.05

Ⓑ 0.10

Ⓒ 0.17

Ⓓ 0.22

5.

A deli has 10 pounds of turkey and 7 pounds of cheese. Each sandwich the deli makes has both turkey and cheese. For each turkey-and-cheese sandwich, the deli uses $\frac{1}{4}$ pound of turkey and $\frac{1}{6}$ pound of cheese. Which phrase describes the **greatest** number of turkey-and-cheese sandwiches the deli can make and whether there is any turkey or cheese remaining?

Ⓐ 40 sandwiches, with some cheese remaining

Ⓑ 42 sandwiches, with some turkey remaining

Ⓒ 82 sandwiches, with no turkey or cheese remaining

Ⓓ 85 sandwiches, with no turkey or cheese remaining

6.

Mr. Brown drives $6\frac{1}{5}$ miles from his home to work. By 8:30 A.M., he has driven $\frac{1}{3}$ of this distance. How far, in miles, has Mr. Brown driven by 8:30 A.M.?

Ⓐ $2\frac{1}{15}$

Ⓑ $2\frac{1}{8}$

Ⓒ $2\frac{1}{5}$

Ⓓ $2\frac{1}{4}$

7.

Tamaya earned $88 last week at her part-time job. Lucius earned more money at his part-time job last week than Tamaya earned. Which statement could be true?

Ⓐ Lucius earned $\frac{6}{5}$ of the amount of money Tamaya earned last week.

Ⓑ Lucius earned $\frac{7}{8}$ of the amount of money Tamaya earned last week.

Ⓒ Lucius earned $\frac{8}{15}$ of the amount of money Tamaya earned last week.

Ⓓ Lucius earned $\frac{5}{16}$ of the amount of money Tamaya earned last week.

8.

A cook used $\frac{1}{4}$ pound of flour to make 5 dumplings of equal size. How many pounds of flour were used in each dumpling?

Ⓐ $\frac{1}{20}$

Ⓑ $\frac{4}{5}$

Ⓒ $1\frac{1}{4}$

Ⓓ 20

9.

Which expression represents 6 times the product of 4 and the difference of 12 and 8?

Ⓐ $6 \times [4 \times (12 - 8)]$

Ⓑ $6 \times 4 + (12 - 8)$

Ⓒ $6 \times [4 - (12 - 8)]$

Ⓓ $6 \times (4 \times 12 - 8)$

10.

D'Angelo sells paintings for $15 each. He pays $6 for supplies for each painting. Which expression could be used to find the amount of money D'Angelo makes by selling 25 paintings?

Ⓐ $25 \times (15 + 6)$

Ⓑ $25 \times (15 - 6)$

Ⓒ $(25 \times 15) + 6$

Ⓓ $(25 \times 15) - 6$

11.

Sarah creates two different number patterns. She uses the numbers in her patterns as ordered pairs on a graph. The two rules are described below.

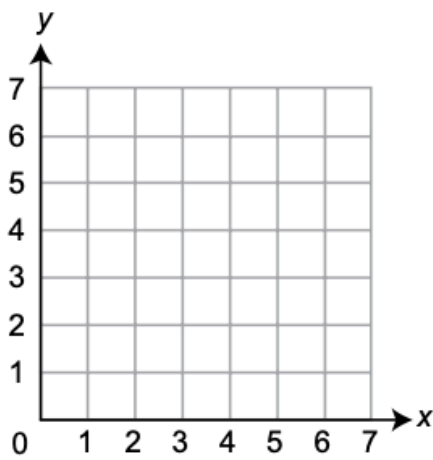x-coordinate rule: start at 2 and follow the pattern "add 2"

y-coordinate rule: start at 6 and follow the pattern "add 4"

The patterns continue. What is the ordered pair of the 4th point on Sarah's graph?

Ⓐ (6, 18)

Ⓑ (6, 24)

Ⓒ (8, 18)

Ⓓ (8, 24)

12.

A coordinate grid is shown below.
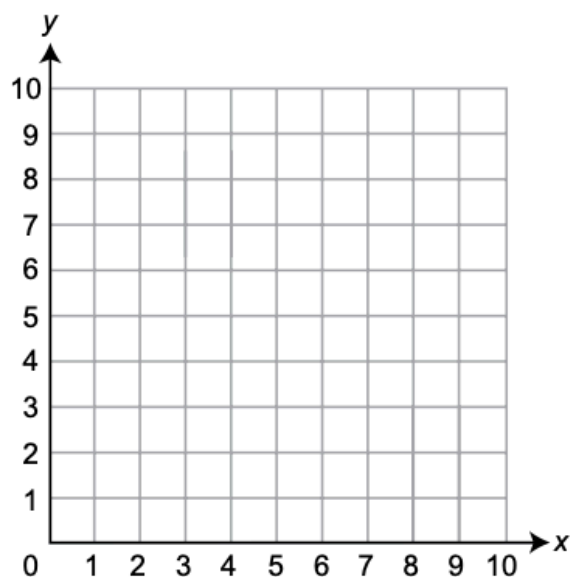

Based on distances along the grid lines, which location is **closest** to the point (2, 3) on the coordinate grid?

Ⓐ (5, 3)

Ⓑ origin

Ⓒ x-axis

Ⓓ y-axis

13.

The coordinate grid shown below is used to determine the locations of future buildings on a plot of land.

The four corners of the plot of land are (0, 0), (0, 10), (10, 10), and (10, 0). Because of spacing regulations, any buildings represented by points with the same y-coordinate must be at least 2 units apart. The location of the first building will be represented by point (3, 7). What is the **greatest** number of buildings that can have a y-coordinate of 7?

Ⓐ 5

Ⓑ 6

Ⓒ 8

Ⓓ 9

14.

A bag contains blue, red, and yellow bracelets.

- There are 20 blue bracelets.

- There are r red bracelets.

- There are twice as many yellow bracelets as red bracelets.

Which expression models the total number of bracelets in the bag?

Ⓐ $20 + \frac{1}{2}r + r$

Ⓑ $20 - \frac{1}{2}r - r$

Ⓒ $20 + 2r + r$

Ⓓ $20 - 2r - r$

15.

Paul has a case with red and blue pens. He has 15 red pens and a total of 28 pens.

What is the ratio of the red pens to blue pens in Paul's case?

Ⓐ 13:15

Ⓑ 13:28

Ⓒ 15:13

Ⓓ 15:28

16.

Which statement correctly describes the expression $4 \cdot (5 + 1)$?

Ⓐ the sum of two factors

Ⓑ the product of two factors

Ⓒ the quotient of two factors

Ⓓ the difference of two factors

17.

Which value is less than 4.8 units away from 2.7 on a number line?

(A) 8.2

(B) $|7.7|$

(C) -3.6

(D) $|-2.4|$

18.

The ratio of girls to boys in the middle school band is 7:6.

What is a possible number of boys in the band?

(A) 13

(B) 21

(C) 24

(D) 41

19.

An equation is given.

$$2x + 4 = 24$$

Which value of x makes the equation true?

(A) 0

(B) 8

(C) 10

(D) 18

20.

The speed of sound is approximately 3×10^2 meters per second. The speed of light is approximately 3×10^8 meters per second. The speed of light is approximately how many times as fast as the speed of sound?

Ⓐ   1,000,000

Ⓑ   3,000,000

Ⓒ   10,000,000,000

Ⓓ   30,000,000,000

END OF ROUND 1 - TEST 1