Mathletes Challenge 2014 Championship Test 2

1 At a swimming pool, Hector swam between 9 and 21 laps each day. Each lap is 26.8 m long. Hector swam at this pool 10 days. Which of the following is a reasonable estimate of the total number of meters Hector swam?

A 1,000 m

B 9,000 m

C 4,500 m

D 1,800 m

GO ON

2. Mona is buying a new car.

- She can choose a car with 2 doors or 4 doors.
- She can choose seat covers made of leather, fabric, or vinyl.
- She can choose a car color of silver, black, or white.

The list below shows some of the possible outcomes of 1 number of doors, 1 type of seat cover, and 1 color.

2 doors, leather, silver	2 doors, leather, black	2 doors, leather, white
2 doors, fabric, silver	2 doors, fabric, black	2 doors, fabric, white
4 doors, leather, silver	4 doors, leather, black	4 doors, leather, white
4 doors, fabric, silver	4 doors, fabric, black	4 doors, fabric, white

Which list shows all the other possible outcomes of 1 number of doors, 1 type of seat cover, and 1 color?

F.

2 doors, vinyl, silver	2 doors, vinyl, black	2 doors, vinyl, white

G.

4 doors, vinyl, silver	4 doors, vinyl, black	4 doors, vinyl, white

H.

2 doors, vinyl, silver	2 doors, vinyl, black	2 doors, vinyl, white
4 doors, vinyl, silver	4 doors, vinyl, black	4 doors, vinyl, white

J.

2 doors, vinyl, silver	4 doors, vinyl, black	2 doors, vinyl, white
4 doors, vinyl, silver	4 doors, vinyl, black	2 doors, vinyl, white

GO ON

3 The measurements in the list below have a characteristic in common.

- 2 miles
- 72,000 inches
- 3,000 feet

Which statement describes the common characteristic?

A Each measurement is less than 4,000 yards.

B Each measurement is greater than 1,760 yards.

C Each measurement is equivalent to 1,000 yards.

D Each measurement is equivalent to 3,520 yards.

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4 Information about three circles is listed below.

- Circle *P* has a diameter of 26 cm.
- Circle *Q* has a diameter of 52 cm.
- Circle *R* has a radius of 52 cm.

Based on this information, which statement is true?

F The diameter of circle *P* is the same length as the diameter of circle *R*.

G The radius of circle *P* is the same length as the radius of circle *Q*.

H The diameter of circle *P* is the same length as the radius of circle *Q*.

J The radius of circle *P* is the same length as the diameter of circle *R*.

GO ON

5 María bought 8 cups of strawberries. She used $1\frac{1}{2}$ cups of the strawberries to make a salad and $3\frac{3}{8}$ cups of the strawberries to make a pie. She needs 4 cups of strawberries to make milk shakes. Does María have enough strawberries left to make the milk shakes?

A No, because $8 - \left(3\frac{3}{8} + 1\frac{4}{8}\right) = 3\frac{1}{8}$, and $3\frac{1}{8} < 4$

B Yes, because $8 - 3\frac{3}{8} = 4\frac{5}{8}$, and $4\frac{5}{8} > 4$

C No, because $\left(8 - 3\frac{3}{8}\right) - 4 = \frac{5}{8}$, and $\frac{5}{8} < 4$

D Yes, because $8 + 3\frac{3}{8} + 1\frac{1}{2} = 12\frac{7}{8}$, and $12\frac{7}{8} > 4$

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6 In a first-aid kit the ratio of large bandages to small bandages is 3 to 2. Based on this ratio, how many large bandages are in the kit if there are a total of 80 bandages?

F 32

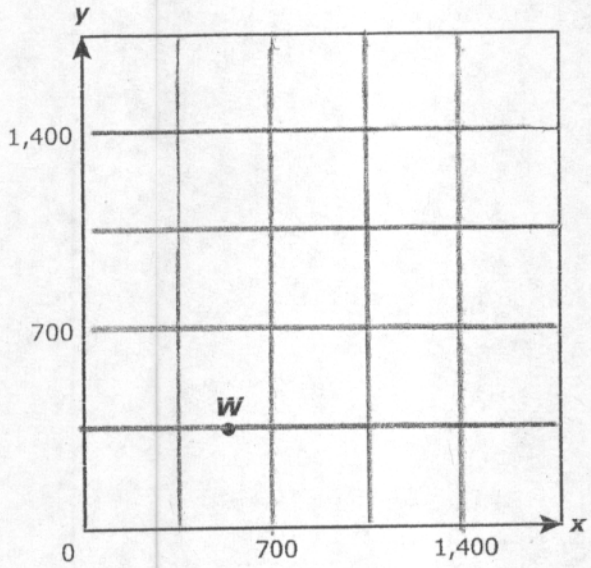
G 48

H 16

J 40

GO ON

7 Which ordered pair appears to be located 350 units to the right and 700 units up from point *W*?



A (1,050, 875)

B (700, 1,050)

C (875, 1,050)

D (1,225, 700)

8 At 7:26 A.M., Dante started delivering packages.

- At 10:34 A.M., he delivered the last package.
- He delivered a total of 18 packages.
- He spent about the same amount of time delivering each package.

Which of the following is the best estimate of the number of minutes Dante spent delivering each package?

F 10 min

G 180 min

H 60 min

J 20 min

9 Mr. Atkinson has $5\frac{1}{4}$ lb of dry fish food. He will put an equal amount of food into 3 containers. How much fish food will be in each container?

A $1\frac{2}{3}$ lb

B $1\frac{3}{4}$ lb

C $2\frac{1}{4}$ lb

D $8\frac{3}{4}$ lb

GO ON

10 On Saturday, Ricardo drank a total of 40 fluid ounces of water. If he drank m fluid ounces of water that morning, which equation can be used to find n, the number of fluid ounces of water he drank the rest of the day?

F $40 - m = n$

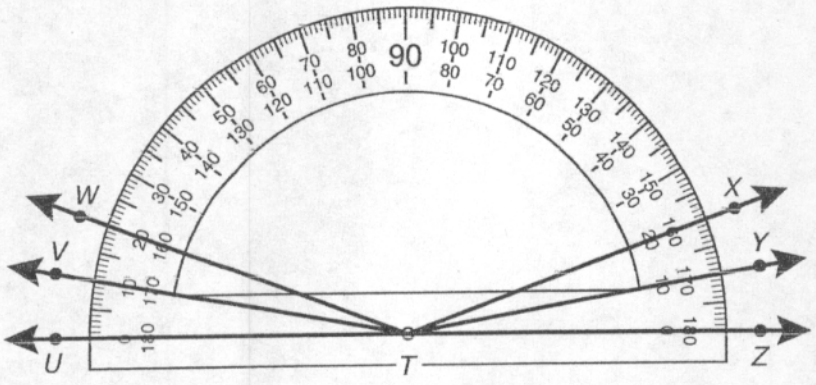
G $40 + m = n$

H $40 \div m = n$

J $40 \times m = n$

GO ON

11 Which angle does NOT appear to have a measure of 160°?



A $\angle VTY$

B $\angle WTZ$

C $\angle WTY$

D $\angle UTX$

12 All the minutes used by Mrs. Larsen and her 3 children for cell phone calls last month were reported on the same bill.

- The bill showed that a total of 1,850 minutes had been used last month.
- Mrs. Larsen used 462 minutes.
- Her son used twice as many minutes as she used.
- Each of her daughters used the same number of minutes.

The expression below can be used to find the number of minutes each of Mrs. Larsen's daughters used.

$$(1{,}850 - 462 - 462 \times 2) \div 2$$

What was the number of minutes each of Mrs. Larsen's daughters used?

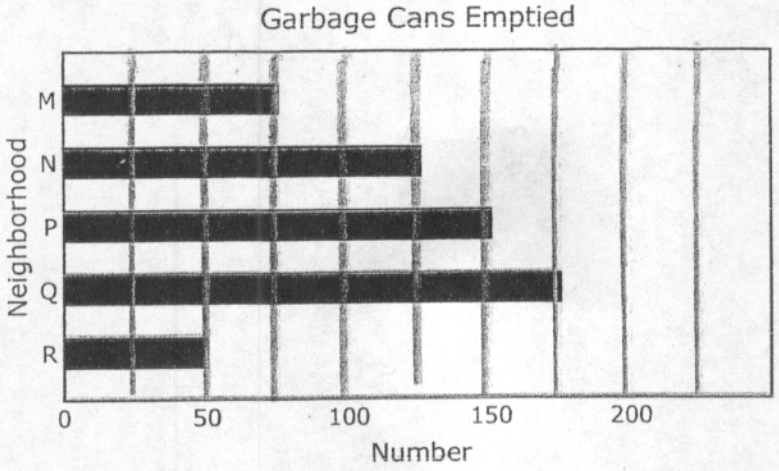
F 926 min

G 1 min

H 1,156 min

J 232 min

13 The graph below shows the number of garbage cans that were emptied in five neighborhoods.



Which statement is best supported by the information in the graph?

A A total of 500 garbage cans were emptied in these 5 neighborhoods.

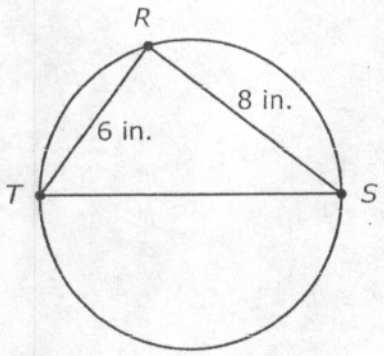
B The combined number of garbage cans emptied in Neighborhood M and Neighborhood N is 50 more than the number of garbage cans emptied in Neighborhood P.

C The difference between the greatest number of garbage cans emptied and the least number of garbage cans emptied is 110.

D The combined number of garbage cans emptied in Neighborhood P and Neighborhood Q is 375 more than the number of garbage cans emptied in Neighborhood R.

GO ON

14. In the figure below, the vertices of triangle *RST* are on a circle.



- Line segment *TS* contains the center of the circle.
- The perimeter of triangle *RST* is 24 inches.

What is the circle's radius?

F 8 inches, because $d = 24 - 8$ and $d \div 2 = r$

G 32 inches, because $d = 24 - 8$ and $d \times 2 = r$

H 20 inches, because $d = 24 - (8 + 6)$ and $d \times 2 = r$

J 5 inches, because $d = 24 - (8 + 6)$ and $d \div 2 = r$

15. Mr. Lee mailed 3 packages. The greatest amount he paid to mail one of these packages was $3.60. The least amount he paid to mail one of these packages was $1.70. What could be the total amount Mr. Lee paid to mail the 3 packages?

A $8.30

B $11.50

C $5.10

D $10.80

16 A king snake is $\frac{31}{50}$ m long. What is an equivalent length of this king snake in meters?

F 0.31 m

G $3\frac{1}{50}$ m

H 0.062 m

J Not here

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17 Vanessa is making a sauce for a chicken dish. The list below shows the amount of each ingredient she needs in order to make 4 servings of the sauce.

- 2 tablespoons of black pepper
- 1 cup of peanut butter
- 3 tablespoons of vinegar
- 2 tablespoons of soy sauce
- 1 cup of water

Based on this information, which statement is true?

A For 16 servings, she would need to use 12 tablespoons of vinegar.

B For 20 servings, she would need to use 7 tablespoons of soy sauce.

C For 2 servings, she would need to use 4 tablespoons of black pepper.

D For 12 servings, she would need to use 9 cups of peanut butter.

GO ON

18 At 8:00 A.M., 26 children were at a day care. By 3:00 P.M., 12 of these children were no longer at the day care. Which integer best represents the change in the number of children at the day care from 8:00 A.M. to 3:00 P.M.?

F +26

G +12

H −26

J −12

19 Which number is equivalent to $\frac{13}{2}$?

A 6.1, because $13 \div 2 = 6$ with a remainder of 1

B $\frac{26}{2}$, because $13 \times 2 = 26$, and $2 \times 1 = 2$

C $6\frac{1}{2}$, because $13 \div 2 = 6$ with a remainder of 1

D 6.05, because $13 \div 2 = 6\frac{1}{2}$, and $\frac{1}{2} = 0.05$

20. There is a relationship between the values of p and k in the table below.

p	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$
k	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	1

Which expression represents the value of k in terms of p?

F • $p + \frac{1}{8}$

G • $p + \frac{1}{16}$

H • $p + \frac{1}{2}$

J • $p + \frac{1}{4}$

2014 Mathletes Challenge Championship ~ 2nd Half

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

2014 Mathletes Challenge Championship ~ 2nd Half

KEY

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