

The University of the West Indies, Mona

presents

2024-2025 Junior Mathematical Olympiad

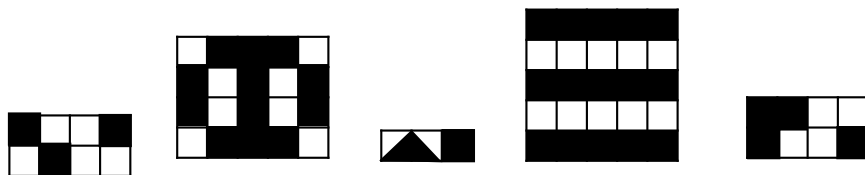
Final Round Examination (Grade 4)

For each question, determine the letter corresponding to the correct or best response; along with the question number, indicate this letter by shading it on the answer sheet

1. What is the value of

$$2 \times 5 + 20 + 25?$$

- (A) 52 (B) 55 (C) 750 (D) 100 (E) 205
2. Which of the following numbers is a multiple of 9 (leaves a zero remainder after dividing by 9)?
- (A) 35 (B) 40 (C) 45 (D) 50 (E) 55
3. Scooby the dog, barks at a constant rate. He takes 6 seconds to make 4 barks. How long does it take Scooby to make 30 barks?
- (A) 30 secs (B) 36 secs (C) 42 secs (D) 45 secs (E) 48 secs
4. Each of the designs shown was initially divided into squares.



For how many of the designs is the total area of the shaded region equal to three-fifths of the area of the whole design?

- (A) 0 (B) 1 (C) 2 (D) 3 (E) 4

5. What number should the symbol Φ be replaced with to make the following correct?

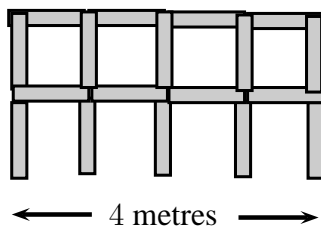
$$\Phi \times \Phi = 2 \times 2 \times 2 \times 2 \times 3 \times 3$$

- (A) 2 (B) 3 (C) 2×3 (D) $2 \times 3 \times 3$ (E) $2 \times 2 \times 3$
6. Sara wants to complete the grid below so that each row and each column of the grid contains the digits 1, 2 and 3 exactly once.

1		x
2	1	
	y	

In the grid, x and y are two of these numbers. What is the value of $x + y$?

- (A) 4 (B) 2 (C) 6 (D) 5 (E) 3
7. Beau lives in a large house with his father, mother, sister and brother as well as 2 dogs, 3 cats, 4 parrots and 5 goldfish. How many legs are there in the house?
- (A) 18 (B) 36 (C) 38 (D) 46 (E) 66
8. Bob the Builder builds a fence using 1 metre long poles. The diagram below shows the 4 metres long fence, consisting of 18 poles, that he builds.



How many poles, in total, does Bob the Builder need to build a similar 10 metres long fence?

- (A) 22 (B) 30 (C) 33 (D) 40 (E) 42
9.

J	M	O
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 is called a symbol. Kai wants to paint a number of these symbols. She wants to colour each letter in the symbol either green, yellow or black, so that all three colours are used on each symbol. She colours one symbol as follows: “J” green, “M” black and “O” yellow. How many more symbols can she colour, so that all the symbols are coloured differently?
- (A) 5 (B) 4 (C) 3 (D) 2 (E) 1

10. Grandpa wants to bake 24 muffins to celebrate my birthday. To bake six muffins two eggs are needed. Eggs are sold in boxes of six. How many boxes of eggs does Grandpa need to buy?
- (A) 1 (B) 2 (C) 3 (D) 4 (E) 8

11. Spiderman went on a mission. When he left his cabin, a digital clock showed the following time:

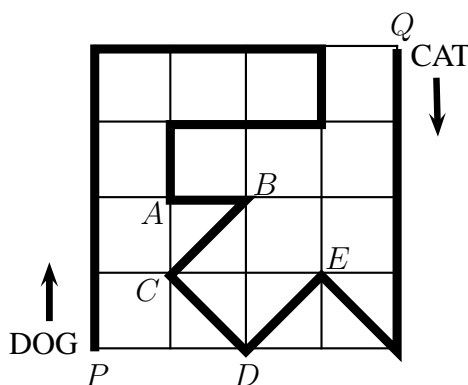
20:20

When he returned and was hanging upside down, he saw the clock again showing:

20:20

How long was Spiderman away from his cabin?

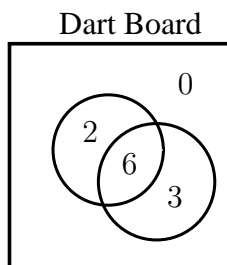
- (A) 3 hrs, 28 mins (B) 3 hrs, 40 mins (C) 3 hrs, 42 mins (D) 4 hrs, 18 mins
 (E) 5 hrs, 42 mins
12. Which of the following integers is closest to $9 \times 11 \times 9 \times 11 \times 9 \times 11$?
- (A) 1 000 (B) 10 000 (C) 100 000 (D) 1 000 000 (E) 10 000 000
13. Ameliah is at home and decides to travel to BeeCee Health Store. One quarter of the way to the store, she stops to talk with Keith. She then continues for 12 km and reaches the store. How many kilometres does she travel from her home to the store?
- (A) 15 (B) 16 (C) 20 (D) 24 (E) 48
14. A dog and a cat walk in the park, along the path marked by the thick black line.



The dog starts from P at the same time that the cat starts from Q . The dog walks three times as fast as the cat. At which point do they meet?

- (A) at A (B) at B (C) at C (D) at D (E) at E

15. A *palindrome* is a positive integer whose digits are the same when read forwards or backwards. For example 22, 181, 7337 and 32423 are four different palindromes. Another palindrome is 2002. What is the smallest number which can be added to 2002 to produce a larger palindrome?
 (A) 110 (B) 100 (C) 18 (D) 108 (E) 1001
16. For every 3 choco-bars that Clara buys at the regular price, she buys a fourth choco-bar for \$25. Clara buys 12 choco-bars in total for \$615. What is the regular price of one choco-bar?
 (A) \$45 (B) \$54 (C) \$57 (D) \$60 (E) \$72
17. Jerrie has two types of sticks, S and L . The S sticks are short and are 1 cm in length and the L sticks are long, measuring 3 cm in length. Which of the following combinations will allow Jerrie to make a square (without breaking or overlapping the sticks)?
 (A) $5S$ and $2L$ (B) $3S$ and $3L$ (C) $6S$ (D) $4S$ and $2L$ (E) $6L$
18. Troy throws two darts at the target shown in the diagram. Both his darts hit the target.



For each dart, he scores the number of points shown in the region he hits. How many different totals can he score?

- (A) 6 (B) 7 (C) 8 (D) 9 (E) 10
19. Mesha (M) multiplies by 3, Abbie (A) adds 2 and Sue (S) subtracts 1. Starting with 3, they all performed their operation to end up with 14. In what order (left to right) were the operations performed?
 (A) MAS (B) MSA (C) AMS (D) ASM (E) SMA
20. In the addition shown, P , Q and R each represent a single digit:

$$\begin{array}{r} PQR \\ + \quad QR \\ \hline 1012 \end{array}$$

What is the value of $P + Q + R$?

- (A) 12 (B) 13 (C) 15 (D) 20 (E) 22

21. A 100-step stairway is numbered, from the ground up, from 1 to 100. Alex is about to go up the stairs where his first step will take him to step 1. Emily is about to go down the stairs from step 100. Her first step down will take her to step 99. For every 7 steps Alex makes going up, Emily makes 3 steps going down. On which step number do Alex and Emily meet?
- (A) 70 (B) 63 (C) 60 (D) 53 (E) 50
22. Each Monday, a bus makes its first stop at the JMO Math Club at 1 p.m. It continues to stop at the club every 20 minutes. Its last stop is at 6 p.m. What is the total number of times that the bus stops at the JMO Math Club on a Monday?
- (A) 10 (B) 14 (C) 16 (D) 18 (E) 20
23. Six people each order one scoop of ice cream. They order 3 scoops of vanilla, 2 scoops of chocolate and 1 scoop of pistachio. They top the ice creams with 3 cherries, 2 wafers and 1 with raisins. They use one topping on each scoop, such that no two ice creams are alike. Which of the following combinations is not possible?
- (A) chocolate with a cherry (B) pistachio with a wafer (C) vanilla with cherry
(D) chocolate with a wafer (E) vanilla with raisins
24. Sanje is saving money. Presently she has \$1200 in her account and will begin saving by making a number of \$300 deposits into her account. Sanje makes m such deposits. Which of the following expressions represents the number of dollars in her account after m deposits?
- (A) $1200 + m$ (B) $300 \times m$ (C) $300 + 1200 \times m$ (D) $1500 \times m$ (E) $1200 + 300 \times m$
25. Eight cars enter a parking lot with a total of 19 persons. There are either 2 or 3 persons in each car. How many cars are there with exactly 2 people?
- (A) 5 (B) 3 (C) 2 (D) 4 (E) 6