

2024-2025 Junior Mathematical Olympiad

Round One Examination (Grade 4) - 1:00pm

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. George wants to paint the words “MATHEMATICAL OLYMPIAD” in his scrapbook. He wants to paint different letters with different colours, and the same letters with the same colour. How many different colours of paint will he need?

(A) 12 (B) 13 (C) 14 (D) 15 (E) 16

2. What is the value of

$$\frac{2025 - 25}{250}?$$

(A) 8 (B) 7 (C) 6 (D) 5 (E) 4

3. What is the value of the following

$$2025 - 2024 + 2025 - 2024 + 2025 - 2024 + 2025 - 2024 + 2025 - 2024?$$

(A) 0 (B) 1 (C) 5 (D) 2024 (E) 2025

4. At a school party, three friends Xie, Yee and Zia each received a bag with 10 pieces of candy. Each of the friends ate 3 pieces of candy and gave 1 piece to their favourite teacher Mrs Grump. What is the total number of pieces of candy the friends have?

(A) 15 (B) 18 (C) 20 (D) 21 (E) 24

5. If you add up the digits of the year 2025, the result is 9. What is the next year after 2025, for which the sum of the digits is again 9?

(A) 2016 (B) 2025 (C) 2133 (D) 2106 (E) 2034

6. What is the minimum number of digits that must be removed from the number 12323314 so that the resulting number is the same when read from left to right, or from right to left?

(A) 1 (B) 2 (C) 3 (D) 4 (E) 5

7. In the following subtraction problem, ♠ represents a single digit.

$$4\spadesuit7 - 189 = 268.$$

What digit is ♠ representing?

- (A) 8 (B) 4 (C) 5 (D) 7 (E) 5
8. At a prune factory, fresh prunes are dehydrated to produce dried prunes. 4 kilograms of fresh prunes produce 1 kilogram of dried prunes. How many kilograms of fresh prunes are needed to produce 4 kilograms of dried prunes?
- (A) 12 (B) 16 (C) 18 (D) 20 (E) 24
9. Santa bought 4 oranges and Claus bought 6 bananas. They each paid the same amount of money and together they paid \$240. What is the cost of 1 banana?
- (A) \$5 (B) \$30 (C) \$60 (D) \$10 (E) \$20
10. In a picto-math problem,

$$\blacksquare + \spadesuit = 3, \quad \spadesuit + \spadesuit = 4 \text{ and } \spadesuit + \heartsuit = 5.$$

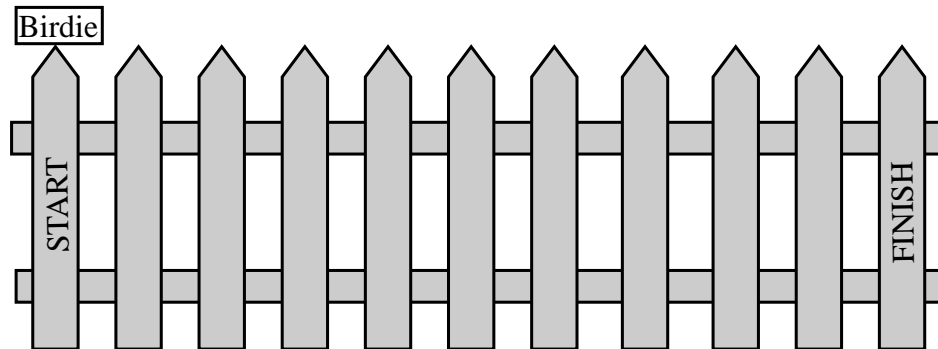
What is the value of $\blacksquare + \heartsuit$?

- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6
11. Twelve children are lined up to enter the school bus. Sydoni is the 7th from the front and Karl is the 2nd from the back. How many children are there between Sydoni and Karl?
- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6
12. Two 3-digit numbers are constructed from the digits 1, 2, 3, 4, 5 and 6, where each digit is used only once. When the two 3-digit numbers are added, what is the largest possible sum?
- (A) 975 (B) 999 (C) 1083 (D) 1173 (E) 1221
13. A full glass of water (water and glass) weighs 400 grams. The empty glass weighs 100 grams. How much does a half-full glass of water weigh?
- (A) 150 g (B) 200 g (C) 225 g (D) 250 g (E) 300 g
14. Young McDonald has a farm and on that farm is one horse, two cows and three pigs only. How many more cows does Young McDonald need to get today, so that exactly half of all his animals are cows?
- (A) 0 (B) 1 (C) 2 (D) 3 (E) 4

15. What is the ones digit (units digit) in the product

$$21 \times 22 \times 23 \times 24?$$

- (A) 1 (B) 2 (C) 4 (D) 4 (E) 6
16. Drey the Dragon has 5 heads. Every time one of its heads is chopped off, 5 new heads grow. Six of Drey the Dragon's heads are chopped off, one by one. How many heads does Drey the Dragon have in the end?
- (A) 26 (B) 27 (C) 30 (D) 28 (E) 29
17. The pages of a book are numbered 1, 2, 3, 4, 5, ... and so on. The digit 5 appears exactly 16 times. What is the maximum number of pages the book can have?
- (A) 56 (B) 64 (C) 72 (D) 80 (E) 88
18. In a box there are three boxes, and each of these (three) boxes contains three smaller boxes. How many boxes are there in total?
- (A) 13 (B) 11 (C) 15 (D) 12 (E) 14
19. Your neighbour has a number of (normal) dogs. The neighbour's dogs have 18 more legs than mouths. How many dogs does your neighbour have?
- (A) 5 (B) 6 (C) 7 (D) 8 (E) 9
20. Birdie is a bird that jumps on a fence from one post to another adjacent post. Each jump takes Birdie 1 second. Birdie makes 4 jumps ahead, then 1 jump back and again 4 jumps ahead and 1 jump back, and so on.



How many seconds does it take Birdie to go from START to FINISH?

- (A) 12 (B) 14 (C) 15 (D) 16 (E) 17

21. In the array of numbers shown below, the numbers in the top row (8, 9, 17, 6, 4) are given. For the others, each number is the positive difference of the two numbers to the right and left in the row immediately above it.

$$\begin{array}{cccccc} 8 & 9 & 17 & 6 & 4 & \\ & 1 & 8 & - & 2 & \\ & & 7 & - & - & \\ & & & - & - & \\ & & & & x & \end{array}$$

What is the value of x ?

- (A) 2 (B) 1 (C) 0 (D) 3 (E) 4
22. Bunnie the rabbit always makes ten jumps within a minute, after which, he takes a three-minute break before jumping again. How many minutes does it take Bunnie to complete 50 jumps?
- (A) 14 (B) 15 (C) 16 (D) 17 (E) 20
23. There are 30 girls and boys in a class where, as a rule, two students must share a desk. In this class, each boy shares a desk with a girl. Half the girls share a desk with a boy. How many boys are in the class?
- (A) 5 (B) 10 (C) 15 (D) 20 (E) 25
24. The dimension of a single square tile is 4×4 . Thirty such tiles are used to form a rectangle. What is the largest possible perimeter (distance around) of this rectangle?
- (A) 88 (B) 136 (C) 248 (D) 360 (E) 480
25. A magical garden has magic trees. On each tree, there are either 6 mangoes and 3 oranges or 8 mangoes and 4 oranges. In total, there are 25 oranges on the magic trees. How many mangoes in total are hanging on the magic trees?
- (A) 35 (B) 40 (C) 45 (D) 50 (E) 56