

2025-2026 Junior Mathematical Olympiad

Round One Examination (Grades 5 and 6) - 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. What is the value of

$$2^2 + 0^2 + 2^2 + 6^2?$$

- (A) 10 (B) 20 (C) 26 (D) 40 (E) 44

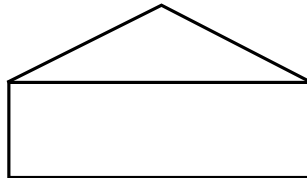
2. In the following multiplication problem, a and b represent two separate digits.

$$\begin{array}{r} 27 \\ \times a \\ \hline 8b \end{array}$$

What is the value of $a + b$?

- (A) 4 (B) 5 (C) 6 (D) 7 (E) 9

3. The figure below consists of a triangle and a rectangle as shown. The triangle can be coloured in either yellow or red, while the rectangle can be coloured in either blue or green or pink.



In how many different ways can the figure be coloured?

- (A) 2 (B) 4 (C) 5 (D) 6 (E) 8

4. What is the value $\frac{1}{3} \times 20\% \times 60$?

- (A) 2 (B) 4 (C) 5 (D) 10 (E) 20

5. What is the sum of all the positive factors of 6?

- (A) 5 (B) 6 (C) 7 (D) 10 (E) 12

6. Mammamade is made by mixing one part of concentrate with four parts of water. What percentage of the mammamade drink is concentrate?
 (A) 20% (B) 25% (C) 40% (D) 75% (E) 80%
7. The smallest prime number is 2, happens to be the only even prime number. Let p be the smallest prime number for which $p + 2$ is also a prime number. What is the value of p ?
 (A) 2 (B) 3 (C) 5 (D) 11 (E) 17
8. The numbers 2, 0, 2, 6 are considered to be a list of 4 numbers. A longer list is formed by repeating 2, 0, 2, 6 generating the pattern

$$2, 0, 2, 6, 2, 0, 2, 6, 2, 0, 2, 6, \dots$$

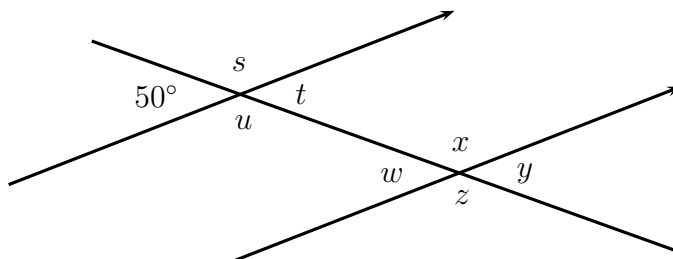
A new list consists of the first 33 numbers, in the same order. How many times does the number 2 appear in this new list?

- (A) 18 (B) 17 (C) 16 (D) 15 (E) 14
9. This year (2026) Jerry turned 36 years old. In which year will Jerry's age next be the square of a natural number?
 (A) 2032 (B) 2039 (C) 2049 (D) 2054 (E) 2062
10. Consider the following equation

$$\frac{12}{15} + \frac{1}{\square} = 1.$$

Which digit does \square represent?

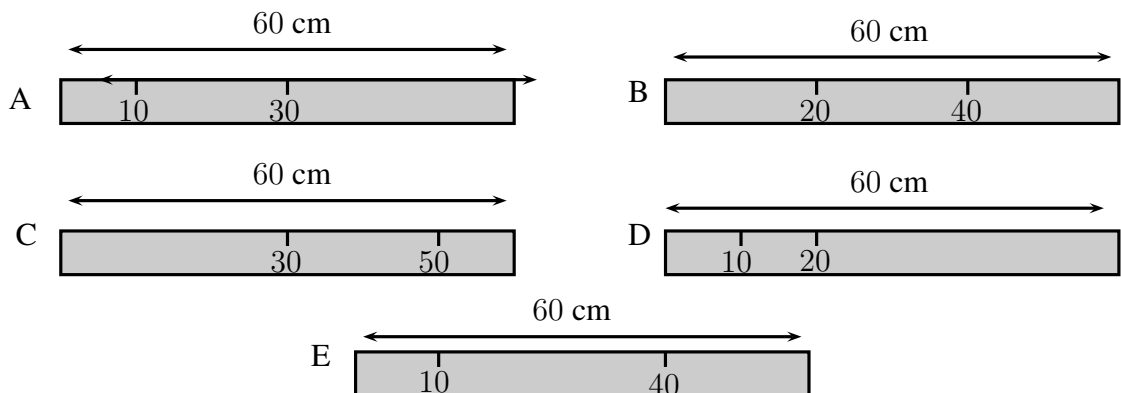
- (A) 5 (B) 4 (C) 3 (D) 2 (E) 1
11. In the diagram, two parallel lines are intersected by a straight line segment.



Which of the following pairs of angles have measures whose sum is equal to 180° ?

- (A) w and z (B) x and y (C) u and x (D) t and y (E) s and x

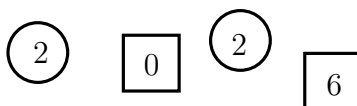
12. On a packet of rice it says that 1 cup of rice has to be cooked with $1\frac{1}{2}$ cups of water. Rey wants to cook $1\frac{1}{2}$ cups of rice. How many cups of water does Rey need?
 (A) $1\frac{1}{4}$ (B) $1\frac{3}{4}$ (C) $2\frac{1}{4}$ (D) $2\frac{1}{2}$ (E) $2\frac{3}{4}$
13. Which of the following represents the area of a square with side length 7 cm?
 (A) $7 \times 2 \text{ cm}^2$ (B) $2 \times (7 + 7) \text{ cm}^2$ (C) $7 \times 7 \text{ cm}^2$ (D) $7 \times 4 \text{ cm}^2$
 (E) $7 \times 7 \times 7 \times 7 \text{ cm}^2$
14. A doctor told Miguel to take one pill every 75 minutes. Miguel took his first pill at 11:05. At what time did he take his fourth pill?
 (A) 12:20 (B) 13:35 (C) 14:50 (D) 16:05 (E) 17:20
15. What is the value of
 50% of 40% of 60 ?
 (A) 12 (B) 24 (C) 36 (D) 48 (E) 240
16. Sai has half as many friends as Inga. Arianna has twice as many friends as Sai. What fraction of all their total friends does Sai have?
 (A) $\frac{1}{3}$ (B) $\frac{1}{4}$ (C) $\frac{1}{5}$ (D) $\frac{1}{6}$ (E) $\frac{1}{8}$
17. Xavier has a ruler that is 60 cm in length. He only has two visible markers on his ruler.



If Xavier can accurately measure any of the lengths 10, 20, 30, 40, 50 and 60 cm using his ruler only once, which of the displayed ruler is his?

- (A) A (B) B (C) C (D) D (E) E
18. There are 8 cars, each transporting either 2 or 3 people. The total number of people being transported by the 8 cars is 19. How many cars contain exactly 2 people?
 (A) 2 (B) 3 (C) 4 (D) 5 (E) 6

19. Riley has six gym weights, weighing 10 kg, 20 kg, 30 kg, 40 kg, 50 kg and 60 kg. Five of the weights are used for balance. The 60 kg weight plus one other weight balance the 50 kg plus two other weights. Which of the weights was not used in the balancing?
 (A) 10 kg (B) 20 kg (C) 30 kg (D) 40 kg (E) Cant say
20. A train travels from East to West or from West to East, stopping at every station along its path. There are only 3 stations W , X and E where E is most easterly, W is most westerly and X is between W and E . Whenever the train reaches stations W or E , it changes its direction. On Monday, the train driver started at station X and made her first stop at station E . At which station will she be, on her 40th stop?
 (A) W (B) X (C) E (D) W and E (E) Cant say
21. The world's smallest vertebrate is a frog whose length is only 7.7 mm long. Approximately how many of these frogs, placed end to end, would be needed to make a line 1 metre long? **NOTE:** 1000 mm = 1 metre.
 (A) 100 (B) 130 (C) 260 (D) 390 (E) 520
22. Rea attends the JMO Academy. Her height is one-quarter of her height plus 120 cm. How tall is Rea?
 (A) 140 cm (B) 145 cm (C) 160 cm (D) 165 cm (E) 175 cm
23. On mother's refrigerator there are four magnets with digits on them. The magnets are



How many different 4-digit numbers can be made with these four magnets?

- (A) 4 (B) 5 (C) 7 (D) 9 (E) 11
24. On a balancing scale, $2\otimes$'s balance $1\square$ and $1\blacksquare$. Also $2\otimes$'s, $1\square$ and $1\blacksquare$ balance $1\square$ and $4\blacksquare$'s. From lightest to heaviest, the symbols are
 (A) $\blacksquare\otimes\square$ (B) $\blacksquare\square\otimes$ (C) $\square\blacksquare\otimes$ (D) $\square\otimes\blacksquare$ (E) $\otimes\square\blacksquare$
25. In a class election for a class monitor, each of the five candidates got a different number of votes. In total, there were 36 votes with the winner getting 12 votes and the candidate finishing in last place receiving 4 votes. How many votes did the candidate finishing in second place get?
 (A) 8 (B) 9 (C) 8 or 9 (D) 9 or 10 (E) 10