

7th iOM'14

International Olympiad of Mathematics



Presented by :

**SILVER
ZONE
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Organized by :

**Mathematics Olympiad
Foundation**

New Delhi, India

For supremacy in Mathematics
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CLASS : 8 (SYLLABUS & SAMPLE QUESTIONS)

Rational Number, Powers and exponents, Square and Square Root, Cube and Cube Root, Algebraic Expression, Factorization, Linear Equation, Direct and inverse proportions, Time and Work, Percentage, Profit and Loss, Compound Interest and Simple Interest, Mensuration, Data handling, Applied Mathematics, Mathematical Reasoning.

The Actual Question Paper Contains 40 Questions. The Duration of the Test Paper is 60 Minutes.

- Jack's monthly salary is ₹ 78,000. He spends 20% on fooding and 10% on house rent. From the remaining, he spends 30% on his only son's education and donates 10% of the rest to charity. His monthly savings is:
 - 35498
 - 34498
 - 34389
 - 34398
 - None of these
- Ravi ranked 8th from the top and 37th from the bottom in a class. How many students are there in the class ?
 - 42
 - 44
 - 46
 - 47
 - None of these
- The value of $\frac{\left(p+\frac{1}{q}\right)^m \left(p-\frac{1}{q}\right)^m}{\left(q+\frac{1}{p}\right)^m \left(q-\frac{1}{p}\right)^m}$ is:
 - $\frac{p}{q}$
 - $\left(\frac{p}{q}\right)^m$
 - $\left(\frac{p}{q}\right)^{2m}$
 - $\left(\frac{q}{p}\right)^{2m}$
 - None of these
- A thread goes 100 around a wheel of radius 14 cm. If the radius of the wheel is increased to 20 cm, then find the number of rounds the same thread will make around the wheel.
 - 70
 - 96
 - 94
 - 92
 - None of these
- A metallic sphere of radius 3 cm is melted and recast into some spherical balls of radius 0.6 cm. The number of balls that can be made out of it is:
 - 90
 - 95
 - 100
 - 125
 - None of these
- Factorise: $x^2 + \frac{1}{x^2} + 2 - 2x - \frac{2}{x}$
 - $x + \frac{1}{x}$
 - $x + \frac{1}{x} - 2$
 - $\left(x + \frac{1}{x}\right)^2$
 - $\left(x + \frac{1}{x}\right)\left(x + \frac{1}{x} - 2\right)$
 - None of these

7. Find the value of n such that

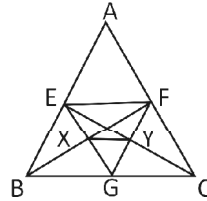
$$\frac{2}{3}(4n-1) - \left(2n - \frac{1+n}{3}\right) = \frac{n}{3} + \frac{4}{3}$$

- (A) $\frac{-5}{4}$ (B) $\frac{5}{4}$
 (C) $\frac{5}{2}$ (D) $\frac{-5}{2}$
 (E) None of these

8. Two pipes A and B can fill a tank in 16 hours and 20 hours respectively. If both the pipes are opened simultaneously, how much time will be taken to fill the tank?

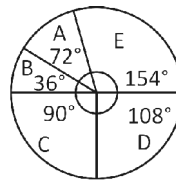
- (A) $8\frac{8}{5}$ hours
 (B) $8\frac{7}{9}$ hours
 (C) $8\frac{17}{9}$ hours
 (D) $8\frac{8}{9}$ hours
 (E) None of these

9. In the given figure $BC = 39$ cm, find XY if $EF \parallel BC$ & $XY \parallel EF$ and E and X are mid points of AB and EG respectively.



- (A) 9.75 cm
 (B) 9.80 cm
 (C) 9.65 cm
 (D) 9.85 cm
 (E) None of these

10. The expenditure on some items is shown in the following pie chart. The percentage of expenditure on A is:



- (A) 15% (B) 20%
 (C) 10% (D) 30%
 (E) None of these



ANSWERS

1. (D) 2. (B) 3. (C) 4. (A) 5. (D) 6. (D) 7. (C) 8. (D) 9. (A) 10. (B)