

# 10<sup>th</sup> iOM'17

## International Olympiad of Mathematics



Presented by:  
**SILVERZONE**  
 FOUNDATION  
 NEW DELHI - INDIA

Organized by:  
**Mathematics Olympiad Foundation**  
 New Delhi, India

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

Number Systems, 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, Reasoning & Aptitude.

*The Actual Question Paper Contains 50 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 8<sup>th</sup> from the top and 37<sup>th</sup> 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

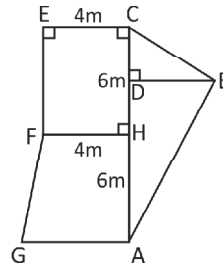
$$\frac{2}{3}(4n-1) - \left(2n - \frac{1+n}{3}\right) = \frac{n}{3} + \frac{4}{3}$$

- (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. The area of the figure ABCEFGA is  $84\text{m}^2$ .  $AH = HC = AG = 6\text{m}$ .  $CE = HF = 4\text{m}$ .



If angles marked in the figure are  $90^\circ$ , then the length of DB will be:

- (A) 2.5m                      (B) 5m  
 (C) 6m                        (D) 12m  
 (E) None of these

10. In an examination, a student was asked to find

$\frac{3}{14}$  of a certain number. By mistake, he found  $\frac{3}{4}$  of that number. His answer was 150 more than the correct answer. The number is:

- (A) 180                      (B) 240  
 (C) 280                      (D) 290  
 (E) None of these

**ANSWERS**

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