11th *i*OM ▾ 18
International Olympiad of
Mathematics

Organized by :
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Presented by:
SILVER ZONE FOUNDATION
NEW DELHI, INDIA

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CLASS : 9 (SYLLABUS & SAMPLE QUESTIONS)

Real Numbers, Polynomials, Logarithms, Linear Equation in Two Variables, Line & Angles, Triangles, Quadrilaterals, Area of Triangles, Parallelograms & Circles, Trigonometric Ratios & Identities, Mensuration, Statistics, Probability, Coordinate Geometry, Word problems based on Mathematics, Verbal & Non-verbal Reasoning.

The Actual Question Paper Contains 50 Questions. The Duration of the Test Paper is 60 Minutes.

1. If $x = \dfrac{7 - \sqrt{45}}{2}$, find the value of $x^3 + \dfrac{1}{x^3}$.
   (A) 47
   (B) 298
   (C) 322
   (D) 428
   (E) None of these

2. From the given figure, find out the values of x and y.
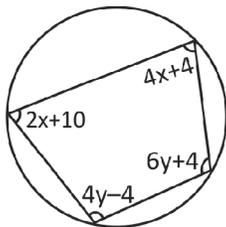
   (A) x = 26, y = 19
   (B) x = 26, y = 29
   (C) x = 25, y = 20
   (D) x = 40, y = 25
   (E) None of these

3. What is the remainder when $x + x^9 + x^{25} + x^{49} + x^{81}$ is divided by $x^3 - x$.
   (A) $5x^2$ (B) $3x^2$
   (C) $4x$ (D) $5x$
   (E) None of these

4. The sides of a quadrilateral taken in order are 26 cm, 27 cm, 7 cm and 24 cm. The angle between the last two sides is a right angle. Find the area of quadrilateral.
   (A) 291.85 cm^2
   (B) 375.85 cm^2
   (C) 84 cm^2
   (D) 600 $\sqrt{15}$ cm^2
   (E) None of these

5. The area of the region bounded by 2x + y = 6, 2x − y + 2 = 0 and x − axis is:
   (A) 4 sq. units
   (B) 6 sq. units
   (C) 8 sq. units
   (D) 2 sq. units
   (E) None of these

6. If $\cos\theta = \dfrac{1}{\sqrt{2}}$, then $\dfrac{2\cos^2\theta + 3\tan^2\theta}{4\cot^2\theta - \sin^2\theta}$ is equal to
   (A) $\dfrac{8}{7}$ (B) $\dfrac{8}{9}$
   (C) $\dfrac{9}{8}$ (D) $\dfrac{7}{8}$
   (E) None of these

7. An aeroplane leaves an airport and flies due north at a speed of 1000 km/h. At same time, another plane flies due west at a speed of 1200 km/h from the same place. The approximate distance between the two planes after 1.5 hours will be:

(A) 2400 km   (B) 2520 km

(C) 2343 km   (D) 2434 km

(E) None of these

8. If O is the centre of the circle, then measure of $\angle$ QPM in the following figure is:
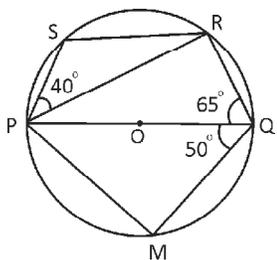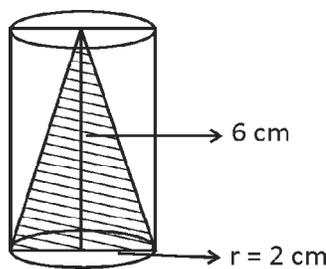

(A) 65°   (B) 50°

(C) 40°   (D) 72°

(E) None of these

9. Three years ago, the mean age of Harison's family of 5 members was 17. A baby having been born, the average age of his family remains same today. The present age of the baby is:

(A) 1 year   (B) 1.5 years

(C) 2.5 years   (D) 2 years

(E) None of these

10. The volume of the shaded region in the following figure is:

(A) $8\pi\,cm^3$ (B) $4\pi\,cm^3$

(C) $2\pi\,cm^3$ (D) $12\pi\,cm^3$

(E) None of these

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