

International Olympiad of Mathematics



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For supremacy in Mathematics

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CLASS : 10 SAMPLE QUESTIONS

The Actual Question Paper Contains 40 Questions. The Duration of the Test Paper is 50 Minutes.

1. If the radius of a sphere is increased by 3 cm, its surface area is increased by 792 cm^2 . The radius of the sphere, before change is _____. (Use $\pi = \frac{22}{7}$)
 (A) 7 cm (B) 14 cm (C) 9 cm (D) 10 cm
2. If $15 \sin A + 8 \cos A = 8$, then find the value of $8 \sin A - 15 \cos A$.
 (A) 8 (B) 12 (C) 15 (D) 64
3. If the greatest common divisor of the numbers $2n + 13$ and $n + 7$ is m , then find the value of $2m + 3$.
 (A) 5 (B) 9 (C) 10 (D) 11
4. From a point p , inside of an equilateral triangle ABC , the perpendicular distances of the three sides are $2\sqrt{3} \text{ cm}$, $3\sqrt{3} \text{ cm}$ and $4\sqrt{3} \text{ cm}$, respectively. Find the semiperimeter of the triangle.
 (A) 27 cm (B) 18 cm (C) 54 cm (D) 36 cm
5. Find the median of the data a, ar, ar^2, \dots, ar^n where n is an odd number.
 (A) $\frac{a}{2} (1+r) r^{\frac{n+1}{2}}$ (B) $\frac{a}{2} (1-r) r^{\frac{n+1}{2}}$
 (C) $\frac{a}{2} (1+r) r^{\frac{n-1}{2}}$ (D) $\frac{a}{2} (1-r) r^{\frac{n-1}{2}}$
6. In the figure given below, two identical circles are intersecting each other at A and B . If O and O' are their centres and $OA O' B$ forms a square of side 1 cm, then find the area (in sq cm) of the shaded portion.
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7. The value of $(24)^3 - (19)^5$ ends in _____.
 (where p is a natural number)
 (A) 2 (B) 3 (C) 4 (D) 5
8. If the positions of the first and the eighth letters of the word REPRESENTATIVE are interchanged, similarly, the positions of the second and the ninth letters of the word are interchanged and so on, which of the following will be the fourth to the left of the sixth from the left end after the rearrangement?
 (A) E (B) A
 (C) P (D) T
9. Find the number of triangles in the figure given below.
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- (A) 18 (B) 20
 (C) 22 (D) 24
10. A quadratic function $f(x)$ attains a maximum of 4 at $x = 1$. The value of the function at $x = 0$ is 2. What is the value of $f(x)$ at $x = -8$?
 (A) -150 (B) -154
 (C) -158 (D) -160

ANSWERS

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