

Mindworkzz
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Must Know Series- Geometry

Q1. The sum of the perimeters of an equilateral triangle and a rectangle is 90cm. The area, T, of the triangle and the area, R, of the rectangle, both in sq cm, satisfy the relationship $T = R$. If the sides of the rectangle are in the ratio 1:3, then the length, in cm, of the longer side of the rectangle, is

- A. 27
- B. 21
- C. 24
- D. 18

Answer: A

Q2. Let C be a circle of radius 5 meters having center at O. Let PQ be a chord of C that passes through points A and B where A is located 4 meters north of O and B is located 3 meters east of O. Then, the length of PQ, in meters, is nearest to

- A. 8.8
- B. 7.8
- C. 6.6
- D. 7.2

Answer: A

Q3. The vertices of a triangle are (0,0), (4,0) and (3,9). The area of the circle passing through these three points is

Answer: $250\pi/9$

Q4. The points (2,1) and (-3,-4) are opposite vertices of a parallelogram. If the other two vertices lie on the line $x + 9y + c = 0$, then c is

- A. 12
- B. 13
- C. 15
- D. 14

Answer: D

Q5. A circle is inscribed in a rhombus with diagonals 12 cm and 16 cm. The ratio of the area of circle to the area of rhombus is

Answer: $6\pi/25$

Q6. On a rectangular metal sheet of area 135 sq in, a circle is painted such that the circle touches two opposite sides. If the area of the sheet left unpainted is two-thirds of the painted area then the perimeter of the rectangle in inches is

Answer: $3\sqrt{\pi} (5 + (12/\pi))$

Q7. A solid right circular cone of height 27 cm is cut into two pieces along a plane parallel to its base at a height of 18 cm from the base. If the difference in volume of the two pieces is 225 cc, the volume, in cc, of the original cone is

- A. 243
- B. 232
- C. 256
- D. 264

Answer: A

Q8. If the volume of a right circular cylinder that can be cut out from a sphere of radius 6 cm is maximum possible, then find the radius of the cylinder?

Answer: $2\sqrt{6}$

Q9. A solid sphere is cut into 8 identical pieces by three mutually perpendicular cuts. By what percentage is the sum of the total surface areas of the eight pieces more than the total surface area of the original sphere?

- A. 110
- B. 150
- C. 70
- D. 90

Answer: B

Q10. What is the number of distinct points of intersection of $x^2 + y^2 = 169$, $5x + 12y = 169$ and $x=0$.

- A. 2
- B. 4
- C. 3
- D. 1

Answer: B

Q11. The graph of $y = x^2 - 8x + 13$ is symmetric wrt to the line $x = c$, then the value of c is
Answer: 4

Q12. In an equilateral triangle ABC, a point P is marked on AB. The side AC is extended to Q such that APQ is a right triangle with $\angle P = 90^\circ$. The area of ABC is equal to the area of APQ. If $BP = x$ then find the value of AB?

Answer: 6 cm

Q13. All the three sides of an equilateral triangle ABC are divided into 3 equal parts using 2 points on each side. Each side has length 6 cm. The points on side AB are A_1 and A_2 with point A_1 being the nearest to A. The points on side BC are B_1 and B_2 with point B_1 being the nearest to B. The points on side AC are C_1 and C_2 with point C_1 being the nearest to C. A circle is drawn inside $A_1B_1C_1$ such that it touches all its sides. Find the radius of the circle.

Answer: $\sqrt{3}$

Q14. A trapezium ABCD has sides AD and BC parallel to each other. The diagonal AC divides the trapezium into two parts such that ABC is an equilateral triangle and ACD is a right triangle right angled at C. If the area of ABC is 100 square cm, then the area of the trapezium (in square cm) is

Answer: 300

Q15. In a right triangle ABC, $\angle ABC$ is 90° . The ratio of sides AB and AC is 2:5. What is the ratio of side BC and the circumradius of the triangle?

Answer: $\sqrt{84}:5$

Q16. PQRXYZ is a hexagon in which all its interior angles are equal. If the lengths of PQ = 1 cm, QR = 4 cm, RX = 2 cm, XY = 2 cm. Then lengths of PZ and ZY are

- A. 3, 3
- B. 4, 2
- C. 2, 4
- D. 4, 4

Answer: A