

AREAS RELATED TO CIRCLES

Q.1) A blacksmith Rajesh bent a steel wire, in the form of a square, encloses an area of 121 sq cm. The same wire he bent in the form of a circle, then the area of the circle is

- (A) 22 cm² (B) 154 cm²
(C) 44 cm² (D) 77 cm²

Q.2) Two circles touch externally. The sum of their areas is 130π sq. cm. and the distance between their centers is 14 cm, then the radii of the circles are

- (A) 14 cm, 3 cm (B) 11 cm, 3 cm
(C) 7 cm, 3 cm (D) 28 cm, 6 cm.

Q.3) The area and perimeter of a sector of a circle with radius 6 cm if angle of the sector is 60° , is

- (A) 18.86 cm², 18.28 cm
(B) 18.76 cm², 18.14 cm
(C) 18 cm², 28 cm
(D) 17 cm², 17.14 cm

Q.4) In a circle of radius 21 cm, an arc subtends an angle of 60° at the centre, then the length of the arc and the area of the sector is

- (A) 22 cm, 231 cm² (B) 11 cm, 200 cm²
(C) 44 cm, 100 cm² (D) 11 cm, 241 cm²

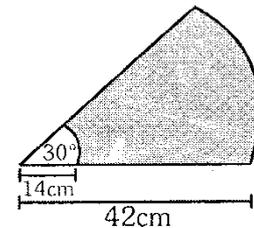
Q.5) The cost of fencing a circular field at the rate of Rs. 24 per metre is RS. 5280. Then the cost of ploughing the field, at the rate of 50 paise/m², is

- (A) Rs. 2875 (B) Rs. 3850
(C) Rs. 1925 (D) Rs. 1825

Q.6) In a circle of radius 21 cm, an arc subtends an angle of the centre. The area of the segment formed by the corresponding chord of the arc is

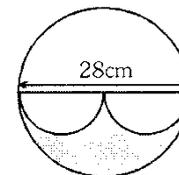
- (A) 40.63 cm² (B) 421.73 cm²
(C) 429.43 cm² (D) 40.27 cm²

Q.7) AB and CD are respectively arcs of two concentric circles of radii 42 cm and 14 cm and centre O as shown in the adjoining figure. If $\angle AOB = 30^\circ$, then the area of the shaded region is



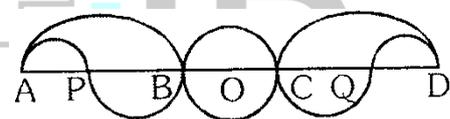
- (A) $\frac{1232}{3}$ cm² (B) $\frac{1220}{3}$ cm²
(C) 411 cm² (D) None of these

Q.8) In the given figure, the area of shaded region is



- (A) 462 cm² (B) 308 cm²
(C) 616 cm² (D) 154 cm²

Q.9) In the adjoining figure $AB = CD = 2BC = 2BP = 2CQ$. In the middle, a circle with radius 1 cm is drawn. In the rest figure all are the semicircular arcs. What is the perimeter of the whole figure?



- (A) 4π (B) 8π
(C) 10π (D) None of these

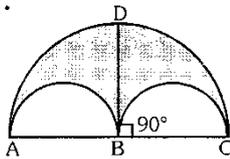
Q.10) The area of the largest possible square inscribed in a circle of unit radius (in square unit) is :

- (A) 3 (B) 4
(C) $2\sqrt{3}\pi$ (D) 2

Q.11) If a regular hexagon is inscribed in a circle of radius r , then its perimeter is :

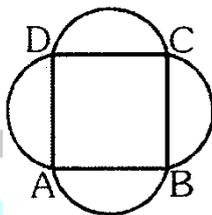
- (A) $6\sqrt{3}r$ (B) $6r$
(C) $3r$ (D) $12r$

Q.12) In the adjoining figure there are three semicircles in which $BC = 6$ cm and $BD = 6\sqrt{3}$ cm. What is the area of the shaded region (in cm):



- (A) 12π (B) 9π
(C) 27π (D) 28π

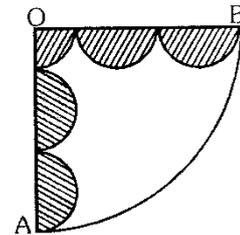
Q.13) ABCD is a square of side a cm. AB, BC, CD and AD all are the chords of circles with equal radii each. If the chords subtend an angle of 120° at their respective centres, find the total area of the given figure, where arcs are part of the circles:



- (A) $\left[a^2 + 4 \left(\frac{\pi a^2}{9} - \frac{a^2}{3\sqrt{2}} \right) \right]$
(B) $\left[a^2 + 4 \left(\frac{\pi a^2}{9} - \frac{a^2}{4\sqrt{3}} \right) \right]$
(C) $[9a^2 - 4\pi + 3\sqrt{3}a^2]$
(D) None of these

Q.14) A circular paper is folded along its diameter, then again it is folded to form a quadrant.

Then it is cut as shown in the figure, after it the paper was reopened in the original circular shape. Find the ratio of the original paper to that of the remaining paper? (The shaded portion is cut off from the quadrant. The radius of quadrant OAB is 5 cm and radius of each semicircle is 1 cm) :

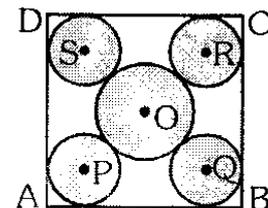


- (A) $25 : 16$ (B) $25 : 9$
(C) $20 : 9$ (D) None of these

Q.15) What is the ratio of sum of circumferences of all the circles to the sum of perimeters of all the squares?

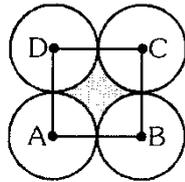
- (A) $(2 + \sqrt{3})\pi R$ (B) $(3 + \sqrt{2})\pi R$
(C) $3\sqrt{3}\pi R$ (D) None of these

Q.16) In the adjoining diagram ABCD is a square with side ' a ' cm. In the diagram the area of the larger circle with centre ' O ' is equal to the sum of the areas of all the rest four circles with equal radii, whose centres are P, Q, R, and S. What is the ratio between the side of square and radius of a smaller circle?



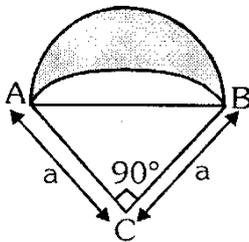
- (A) $(2\sqrt{2} + 3)$ (B) $(2 + 3\sqrt{2})$
(C) $(4 + 3\sqrt{2})$ (D) Can't be determined.

Q.17) ABCD is a square, 4 equal circles are just touching each other whose centres are the vertices A, B, C, D of the square. What is the ratio of shaded to the unshaded area within square?



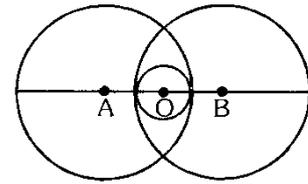
- (A) $\frac{8}{11}$ (B) $\frac{3}{11}$
(C) $\frac{5}{11}$ (D) $\frac{6}{11}$

Q.18) In the adjoining figure ACB is a quadrant with radius 'a'. A semicircle is drawn outside the quadrant taking AB as a diameter. Find the area of shaded region :



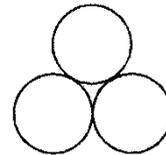
- (A) $\frac{1}{4}(\pi - 2a^2)$ (B) $\left(\frac{1}{4}\right)(\pi a^2 - a^2)$
(C) $\frac{a^2}{2}$ (D) Can't be determined

Q.19) There are two circles intersecting each other. Another smaller circle with centre O, is lying between the common region of two larger circles. Centre of the circle (i.e., A, O and B) are lying on a straight line. AB = 16 cm and the radii of the larger circles are 10 cm each. What is the area of the smaller circle?



- (A) $4\pi \text{ cm}^2$ (B) $2\pi \text{ cm}^2$
(C) $\frac{4}{\pi} \text{ cm}^2$ (D) $\frac{\pi}{4} \text{ cm}^2$

Q.20) Three circles of equal radii touch each other as shown in figure. The radius of each circle is 1 cm. What is the area of shaded region?

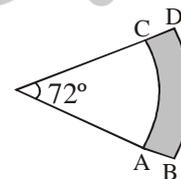


- (A) $\left(\frac{2\sqrt{3} - \pi}{2}\right) \text{ cm}^2$ (B) $\left(\frac{3\sqrt{2} - \pi}{3}\right) \text{ cm}^2$
(C) $\frac{2\sqrt{3}}{\pi} \text{ cm}^2$ (D) None of these

Q.21) The inner circumference of a circular track is 220 m, and the track is 14 m wide. The cost of levelling the track, at 50 paise/m², is

- (A) M1848 (B) M1663.2
(C) M1478.4 (D) None of these

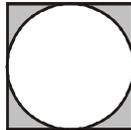
Q.22) In the adjoining figure, O is the centre of a circle. If OA = 10 cm, OB = 15 cm and $\angle AOB = 72^\circ$, then the area of the shaded region is



- (A) $5\pi \text{ cm}^2$ (B) $10\pi \text{ cm}^2$
(C) $25\pi \text{ cm}^2$ (D) $35\pi \text{ cm}^2$

Q.23) In the adjoining figure, a circle is inscribed in a

square of side 14 cm. The area of the shaded region is equal to



- (A) 196 cm^2 (B) 154 cm^2
(C) 52 cm^2 (D) 42 cm^2

Q.24) The length of minute hand of a clock is 14 cm. The area swept by the minute hand in one minute is :

- (A) 10.26 cm^2 (B) 10 cm^2
(C) 11 cm^2 (D) 11.25 cm^2

Q.25) The area of a circle is 154 cm^2 . Its diameter is

- (A) 7 CM (B) 14 CM
(C) 21 CM (D) 28 CM

Q.26) The length of the minute hand of a clock is 14 cm. The area swept by the minute hand in 5 minutes is

- (A) 153.9 CM^2 (B) 102.6 CM^2
(C) 51.3 CM^2 (D) 205.2 CM^2

Q.27) MCQ Questions For Class 10 Maths Areas Related To Circles Question 11. The radii of two circles are 19 cm and 9 cm respectively. The radius of the circle which has circumference equal to the sum of the circumference of two circles is

- (A) 35 CM (B) 10 CM
(C) 21 CM (D) 28 CM

Q.28) Area Related To Circle Class 10 MCQ Question 17. The diameter of a wheel is 1.26 m. The distance travelled in 500 revolutions is

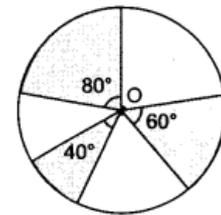
- (A) 2670 M (B) 2880 M
(C) 1980 M (D) 1596 M

Q.29) If the circumference of a circle and the perimeter of a square are equal, then

- (A) (A) area of the circle = area of the square
(B) area of the circle > area of the square

- (C) area of the circle < area of the square
(D) nothing definite can be said about the relation between the areas of the circle and square.

Q.30) In the given figure, three sectors of a circle of radius 7 cm, making angles of 60° , 80° and 40° at the centre are shaded. The area of the shaded region (in cm^2) is [Using $\pi = 22/7$]



- (A) 77 (B) 154
(C) 44 (D) 22

Answer Sheet

Q.1	B	Q.11	B	Q.21	A
Q.2	B	Q.12	C	Q.22	C
Q.3	A	Q.13	B	Q.23	D
Q.4	A	Q.14	A	Q.24	A
Q.5	C	Q.15	D	Q.25	B
Q.6	D	Q.16	B	Q.26	C
Q.7	A	Q.17	B	Q.27	D
Q.8	D	Q.18	C	Q.28	C
Q.9	C	Q.19	A	Q.29	B
Q.10	D	Q.20	A	Q.30	A