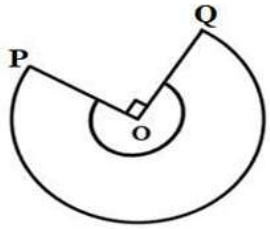
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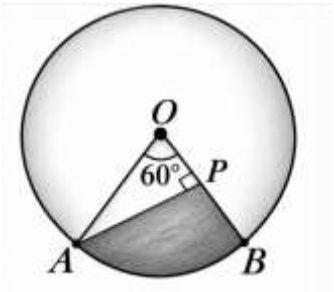
Class X - Mathematics (2026-27)

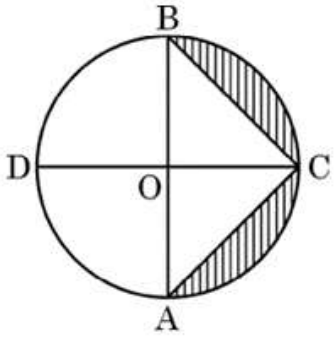
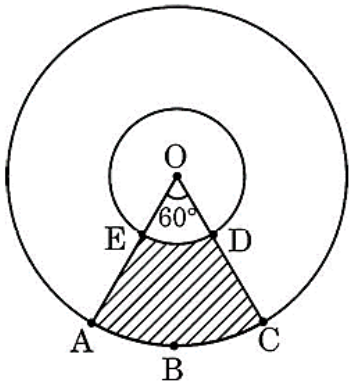
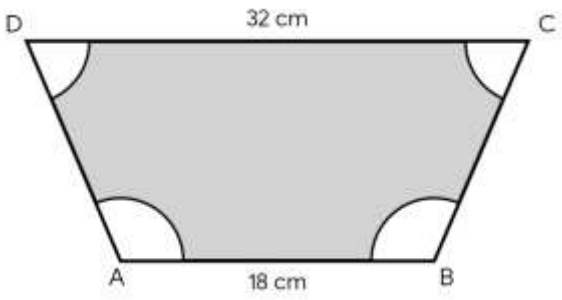
Worksheet – Areas related to Circles 11-11-2026

Questions of 2 marks each

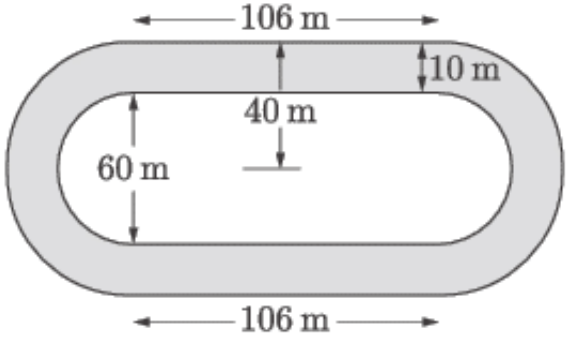
Q.1.	The length of the minute hand of a wall clock is 21 cm. Find the area swept by the minute hand in 45 minutes.
Q.2.	A pendulum swings through an angle of 30° and describes an arc 8.8 cm in length. Find the length of the pendulum.
Q.3.	The shape of the top of a table in a restaurant is that of a sector of a circle O and $\angle POQ$=90°, if PO = OQ = 60 cm. Find the area of the top of the table. (Use π = 3.14). 
Q.4.	The area of a sector of a circle of radius 36 cm is $54\pi\ cm^2$. Find the length of the corresponding arc of the sector.
Q.5.	The area of a circular play ground is 22176 cm^2. Find the cost of fencing this ground at the rate of ₹50 per metre.

Questions of 3 marks each

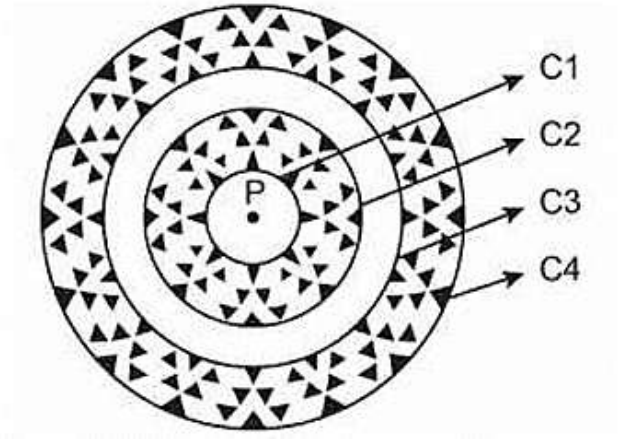
Q.6.	The perimeter of a certain sector of a circle of radius 5.6m is 20.0m. Find the area of the sector.
Q.7.	In the given figure, AOB is a sector of angle 60° of a circle with centre O and radius 17 cm. If AP ⊥ OB and AP = 15 cm, find the area of the shaded region. 

Q.8.	A horse is tied with a 14 m long rope at one corner of an equilateral triangular field having side 20m. Find the area of the field where the horse cannot graze. (Use $\sqrt{3} = 1.73$)
Q.9.	In the given figure, AB and CD are diameters Of a circle with centre O perpendicular to each other. If OA = 7 cm, find the area of the shaded region. 
Q.10.	In the given figure, two concentric circles with centre O are shown. Radii of the circles are 2 cm and 5 cm respectively. Find the area of the shaded region. 
Q.11.	The short and long hands of a clock are 4 cm and 6 cm long respectively. Find the sum of distances travelled by their tips in 2 days.
	Questions of 5 marks each
Q.12.	In the given figure ABCD is a trapezium with AB || CD, AB= 18 cm and DC =32 cm and the distance between AB and CD is 14 cm. If arcs of equal radii 7 cm taking A, B, C and D have been drawn, then find the area of the shaded region. 

Q.13. Fig. depicts a racing track whose left and right ends are semi-circular. The distance between the two inner parallel line segments is 60 m and they are each 106 m long. If the track is 10 m wide everywhere, find the area of the track.



Q.14. Jaya drew this rangoli design during a competition.



Circles C1, C2, C3 and C4 have common centre P. The radius of circle C1 is 6 cm.

The table given below shows the radii of circles in terms of the radius of circle C1.

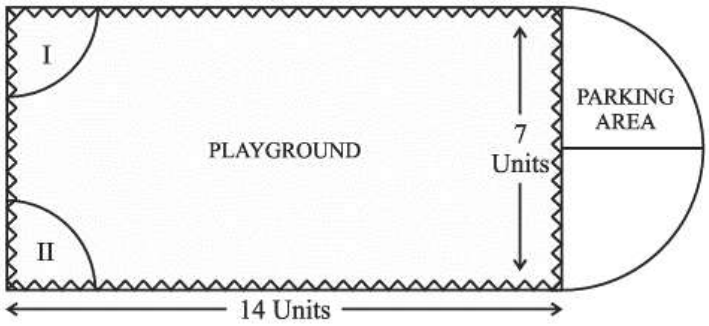
Radius of circle	No. of times of radius of C1
C2	2
C3	2.5
C4	3.5

(i) The area enclosed between circles C1 and C2 and circles C3 and C4 have been painted. Find the total area of the figure that has been painted. (Use $\pi = \frac{22}{7}$)

(ii) Jaya wants to outline the boundaries of circles C2 and C3 with a ribbon. One roll of the ribbon is 20 cm long. How many rolls of the ribbon would Jaya need? (Use $\pi = \frac{22}{7}$)

Case study question (4 marks)

Q.15. Governing council of a local public development authority of Dehradun decided to build an adventurous playground on the top of a hill, which will have adequate space for parking.



After survey, it was decided to build rectangular playground, with a semi-circular area allotted for parking at one end of the playground. The length and breadth of the rectangular playground are 14 units and 7 units, respectively. There are two quadrants of radius 2 units on one side for special seats.

Based on the above information, answer the following questions:

(i) What is the total perimeter of the parking area? (1)

(ii) (a) What is the total area of parking and the two quadrants? (2)

OR

(b) What is the ratio of area of playground to the area of parking area? (2)

(iii) Find the cost of fencing the playground and parking area at the rate of ₹2 per unit. (1)

ANSWERS

Q.1	1039.5 cm^2	**Q.2**	16.8 cm	**Q.3**	8478 cm^2	**Q.4**	9.428 cm	**Q.5**	₹ 264
Q.6	24.64 m^2	**Q.7**	91.38 cm^2	**Q.8**	70.33 m^2	**Q.9**	28 cm^2	**Q.10**	11 cm^2
Q.11	1910.85 cm	**Q.12**	196 cm^2	**Q.13**	4320 m^2	**Q.14**	(i) 1018.29 cm^2 (ii) 9 rolls	**Q.15**	(i) 18 units (ii) 25.54 sq. units OR 56: 11 (iii)₹ 106