INDIAN SCHOOL AL WADI AL KABIR
Class X, Mathematics
AREAS RELATED TO CIRCLES WORKSHEET

OBJECTIVE TYPE (1 Mark)

Q.1. The perimeter (in cm) of a square circumscribing a circle of radius "a" cm, is

A	8a	**B**	4a	**C**	2a	**D**	16a

Q.2. If the area of a circle is numerically equal to twice its circumference, then the diameter of the circle is

A	4 units	**B**	π units	**C**	8 units	**D**	2 units

Q.3. If the circumference of a circle is 352 metres, then its area in square metres is

A	5986	**B**	6589	**C**	7952	**D**	9856

Q.4. The diameter of a wheel is 1.26 m. the distance travelled in 500 revolutions is

A	2670 m	**B**	1980 m	**C**	2880 m	**D**	1596 m

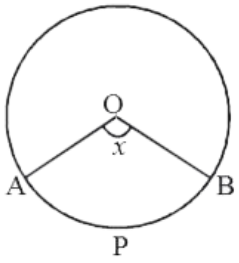
Q.5. Area of largest triangle that can be inscribed in a semi-circle of radius "r" units is

A	$r^2 sq.units$	**B**	$\frac{1}{2}r^2 sq.units$	**C**	$2r^2 sq.units$	**D**	$\sqrt{2}r^2 sq.units$

Q.6. The diameter of the wheel of a bus is 1.4 m. The wheel makes 10 revolutions in 5 seconds. The speed of the vehicle (in kmph) is

A	42.21 km/h	**B**	19.76 km/h	**C**	31.68 km/h	**D**	28.68 km/h

Q.7. In the given figure, O is the centre of a circle. The area of sector OAPB is $\frac{5}{18}$ of the area of the circle, then the value of x is



A	80°	**B**	95°	**C**	90°	**D**	100°

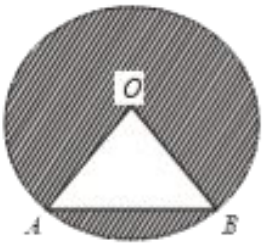
Q.8. If the circumference of a circle is increased by 50%, then its area will be increased by

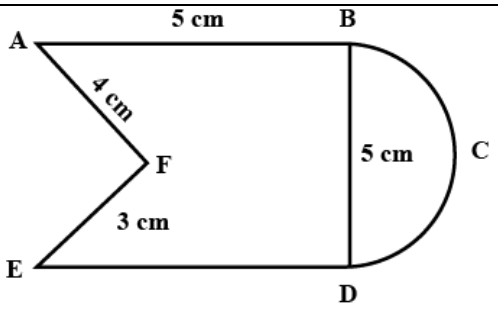
A	100%	**B**	125%	**C**	150%	**D**	75%

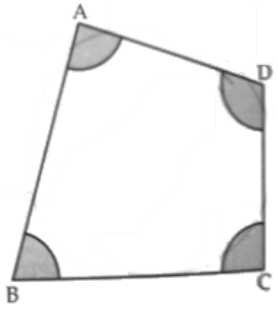
Q.9. A circular road runs round a circular ground. If the difference between the circumference of the outer circle and the inner circle is 66 metres, then the width of the road is

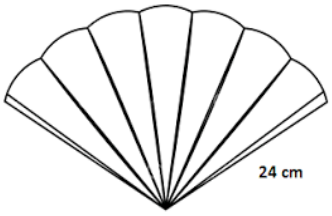
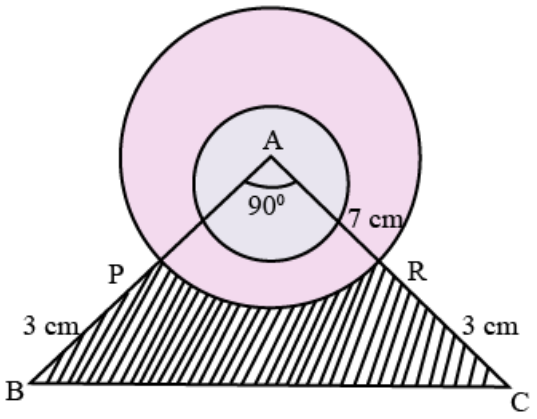
A	10.5 m	**B**	10.05 m	**C**	100.5 m	**D**	11.05 m

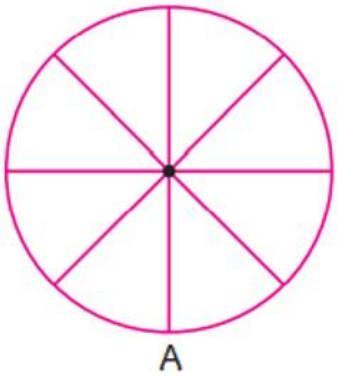
Q.10.	O is the centre of a circle orf radius 5 cm. The chord AB subtends an angle of 60°. Area of the shaded portion is equal to (approximately)							
	A	50 sq.cm	**B**	62.78 sq.cm	**C**	49.88 sq.cm	**D**	67.67 sq.cm
	ASSERTION AND REASONING							
	DIRECTION: A statement of **Assertion (A)** is followed by a statement of **Reason (R).** Choose the correct option. (a)Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true.							
Q.11.	Assertion(A): In a circle of radius 6 cm, the angle of a sector is 60°. Then the area of the sector is 132/7 cm^2. Reason(R): Area of the circle with radius r is πr^2.							
Q12.	Assertion(A): If the radius of a circle is $\frac{7}{\sqrt{\pi}} cm$, then the area of the circle is 49 cm^2 Reason(R):If r is the radius of a circle, then area of circle is $2\pi r$.							
	Questions of 2 marks each							
Q.13.	The minute hand of a clock is 10cm long. Find the area of the face of the clock described by the minute hand between 8 a.m. and 8:25 a.m.							
Q.14.	The wheel of a motorcycle is of radius 35 cm. How many revolutions are required to travel a distance of 11 m?							
Q.15.	Find the area of the given figure ABCDEF.							
Q.16.	In the given figure, arcs have been drawn of radius 7cm each with vertices A, B, C and D of quadrilateral ABCD as centres. Find the area of the shaded region.							

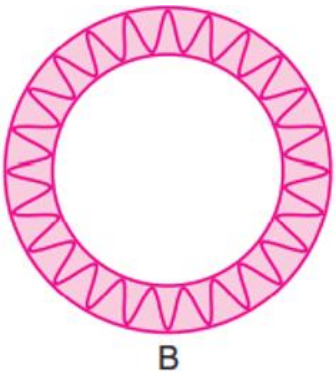






Q.17.	The circumference of a circular plot is 220 m. A 15m wide concrete track runs around outside the plot. Find the area of the track.
	Questions of 3 marks each
Q.18.	A chord 10 cm long is drawn in a circle whose radius is $5\sqrt{2}$ cm. Find area of both the segments.
Q.19.	You are required to create a model of a circular wall clock and paste the numbers from 1 to 12 on its dial. What is the angle made at the center between 3 and 7? Find the area of this region, if the length of the minute hand of the clock is 21 cm.
Q.20.	A Japanese fan can be made by sliding open its 7 small sections(or leaves), each of which is in the form of sectors of a circle having a central angle of 15 degrees. If the radius of this fan is 24 cm, find out the length of the lace that is required to cover its entire boundary. 
Q.21.	If $(-5,3)$ and $(5,3)$ are two vertices of an equilateral triangle, then find the coordiantes of the third vertex, given that origin lies inside the triangle. (Take $\sqrt{3} = 1.7$).
	Questions of 5 marks each
Q.22.	A memento is made as shown in figure. Its base PBCR is silver plated from the front side at the rate of ₹ 20 per cm^2. Find the total cost of silver plating. 
Q.23.	Sides of a triangular field are 15 m, 16 m and 17 m. With the three corners of the field a cow, a buffalo and a horse are tied separately with ropes of length 7 m each to graze in the field. Find the area of the field which cannot be grazed by the three animals.
	CASE STUDY QUESTION: A brooch is a small piece of jewellery which has a pin at the back so it can be fastened on a dress, blouse or coat. Design of some brooch are shown beside. Observe them carefully. **Design A:** Brooch A is made with silver wire in the form of a circle with diameter 28 mm. The wire used for making 4 diameters which divide the circle into 8 equal parts. **Design B:** Brooch B is made with two colours- Gold and Silver. Outer part is made with gold. The circumference of silver part is 44 mm and the gold part is 3 mm wide everywhere. Based on the above information, answer the following questions.





Q.24.	What is the total length of silver wire required? (refer design A)
Q.25.	Find the area of each sector of the brooch. (refer design A)
Q.26.	What is the circumference of the outer part (golden)? (refer design B)
Q.27.	Find the difference of areas of golden and silver parts. (refer design B)
Q.28.	A boy is playing with brooch B. He makes revolution with it along its edge. How many complete revolutions must it take to cover 80 π mm? (refer design B)

ANSWERS

Q.1.	A	**Q.2.**	C	**Q.3.**	D	**Q.4.**	B
Q.5.	A	**Q.6.**	C	**Q.7.**	D	**Q.8.**	B
Q.9.	A	**Q.10.**	D	**Q.11.**	b	**Q.12.**	c
Q.13.	130.95 cm^2	**Q.14.**	5	**Q.15.**	28.82 cm^2	**Q.16.**	154
Q.17.	40007.14 m^2	**Q.18.**	142.85 cm^2	**Q.19.**	462 cm^2	**Q.20.**	528 cm^2
Q.21.	$(0, -5.5)$	**Q.22.**	11.5 cm^2, ₹230	**Q.23.**	$(24\sqrt{21} - 77)$ cm^2	**Q.24.**	200 mm
Q.25.	77 sq.mm	**Q.26.**	62.86 mm	**Q.27.**	51 π	**Q.28.**	4

****