INDIAN SCHOOL AL WADI AL KABIR

Department: Mathematics

Class X **Worksheet – Areas related to Circles**

(MCQ & Assertion - Reason) **05 – 11 -2023**

Questions of 1 mark each

Q.1. Area of a segment of a circle of radius r and central angle 90° is

A	$\frac{\pi r^2}{2} - \frac{1}{2} r^2$	B	$\frac{2\pi r}{4} - \frac{1}{2} r^2$	C	$\frac{\pi r^2}{4} - \frac{1}{2} r^2$	D	$\frac{2\pi r}{2} - r^2 \sin 90°$

Q.2. If a bicycle wheel makes 5000 revolutions in moving 11 km, then the diameter of the wheel is

A	65 cm	B	35 cm	C	50 cm	D	70 cm

Q.3. The area of a sector of a circle of radius 16 cm cut off by an arc of length 18.5 cm is

A	168 cm^2	B	148 cm^2	C	154 cm^2	D	176 cm^2

Q.4. The difference of the areas (in cm^2) of two segments of a circle of radius 5 cm, formed by a chord subtending an angle of 90° at the centre is (CFQ)

A	$\frac{25\pi}{4} - \frac{25}{2}$	B	$\frac{25\pi}{2} + 25$	C	$\frac{15\pi}{4} - \frac{7}{2}$	D	$\frac{7\pi}{4} - \frac{3}{2}$

Q.5. The hour – hand of a clock is 6 cm long. The angle swept by it between 7:20 am and 7:55 am is

A	$\left(\frac{35}{2}\right)^0$	B	$\left(\frac{35}{4}\right)^0$	C	35°	D	70°

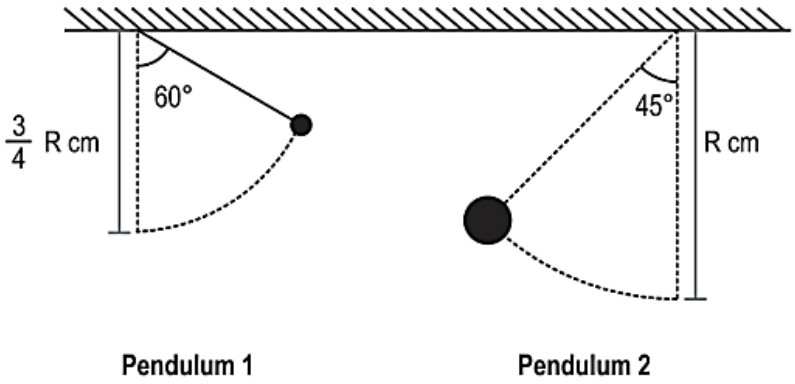
Q.6. It is proposed to build a single circular park equal in area to the sum of areas of two circular parks of diameters 16 m and 12 m in a locality. The radius of the new park is

A	20 m	B	15 m	C	10 m	D	24 m

Q.7. An arc of a circle of length 5π cm and the sector it bounds has an area of 20π cm^2.
The radius of the circle is

A	1 cm	B	5 cm	C	8 cm	D	10 cm

Q.8. Shown below are two pendulums of different lengths attached to a bar.



Based on the figure shown above, the length of arc of pendulum 1 is _____ the length of arc of pendulum 2. (CFQ)

A	greater than	B	less than	C	equal to	D	cannot say without knowing the value of R

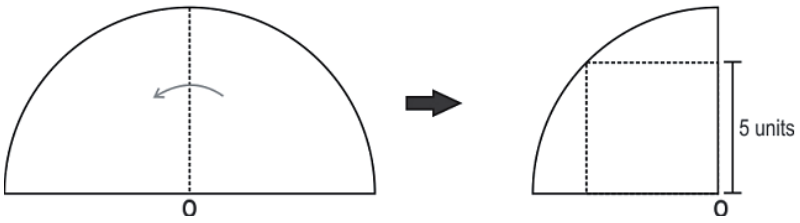
Q.9. OACB is a quadrant of a circle with centre O and radius 7 cm where ACB is the arc. Then the perimeter of the quadrant is

A	15 cm	B	50 cm	C	25 cm	D	44 cm

Q.10. The length of an arc of a circle of radius 18 cm is 10π cm. Then the angle subtended by this arc at the centre of the circle is

A	90°	B	120°	C	60 °	D	100°

Q.11. Shown below is a semicircular sheet of paper with centre O which is folded in half. (CFQ)
A square of length 5 units is cut from it.



What is the area of paper left (in sq.units)?

A	$25\ (\pi - 1)$	B	$25\ (\pi - 2)$	C	$25\ (2\pi - 2)$	D	$25\ (\frac{\pi}{2} - 1)$

Q.12. If the radii of two concentric circles are 15 m and 13 m, then the area of the circular ring (in sq. m) is

A	176	B	178	C	180	D	200

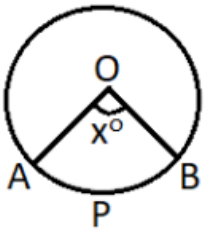
Q.13. The area of the circle that can be inscribed in a square of 6cm is

A	$36\pi cm^2$	B	$18\pi cm^2$	C	$12\pi cm^2$	D	$9\pi cm^2$

Q.14. A copper wire when bent in the form of a square encloses an area of 225 cm^2. If the same wire is bent into the form of a circle, then the area of the circle is (Use $\pi = \frac{22}{7}$)

A	$\frac{900}{\pi}\ cm^2$	B	$\frac{\pi}{900}\ cm^2$	C	$\frac{700}{\pi}\ cm^2$	D	$\frac{\pi}{700}\ cm^2$

Q.15. In figure 'O' is the centre of a circle. If the area of sector OAPB is 10/72 of the area of the circle, find x.



A	30°	B	50°	C	40°	D	60°

Q.16. The short and long hands of a clock are 4cm and 6cm respectively. The sum of distances travelled by their tips in 2 days is (CFQ)

A	1148 cm	B	1426.35 cm	C	1910.85 cm	D	1248.75 cm

ASSERTION AND REASONING

DIRECTION: In questions, 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.17.	**Assertion:** The area of the sector of a circle of radius 14 cm and central angle 90° is 154 cm^2. **Reason:** The area of the sector of a circle of radius r and central angle θ is $\pi r^2 \frac{\theta}{360}$.
Q.18.	**Assertion:** The area of a circular playground is 22176 m^2 and the cost of fencing this ground at the rate of ₹ 50 per metre is ₹ 26400 **Reason:** If R and r be the radii of outer and inner circular path, then the area of the ring is $\pi(R^2 - r^2)$
Q.19.	**Assertion:** The diameter of a circle whose area is equal to the sum of the areas of the two circles of radii 24 cm and 7 cm is 50 cm. **Reason:** If the perimeter and the area of a circle are numerically equal, then the radius of the circle is 2 units.
Q.20.	**Assertion:** If a wire of length 22 cm is bent in the shape of a circle, then area of the circle so formed is 40 cm^2. **Reason:** Circumference of the circle = Length of the wire.

ANSWERS

Q.1	C	**Q.2**	D	**Q.3**	B	**Q.4**	B	**Q.5**	A
Q.6	C	**Q.7**	C	**Q.8**	B	**Q.9**	C	**Q.10**	D
Q.11	B	**Q.12**	A	**Q.13**	D	**Q.14**	A	**Q.15**	B
Q.16	C	**Q.17**	a	**Q.18**	b	**Q.19**	b	**Q.20**	d

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