AREAS RELATED TO CIRCLES

MCQs & A and R WORK SHEET

Test / Exam Name: Mcq 01 **Standard: 10th** **Subject: Mathematics**

Student Name: _____ **Section:** _____ **Roll No.:** _____

Questions: 47 **Time: 01:00 hh:mm** **Negative Marks: 0** **Marks: 47**

Instructions

1. MULTIPLE CHOICE QUESTIONS.

Q1. The area of the sector of angle 60º of a circle with radius 10cm is: **1 Mark**

A $52\frac{2}{21}cm^2$ **B** $52\frac{8}{21}cm^2$ **C** $52\frac{4}{21}cm^2$ **D** None of these

Q2. The circumference of a circle whose diameter is 4.2cm is: **1 Mark**

A 13.2cm **B** 4.2cm **C** 11cm **D** 22cm

Q3. Two concentric circles intersect at _____ number of points: **1 Mark**

A 2 **B** 0 **C** 1 **D** None of these

Q4. The circumference of a circle is 22cm. The area of its quadrant (in cm^2) is: **1 Mark**

A $\frac{77}{2}$ **B** $\frac{77}{4}$ **C** $\frac{77}{8}$ **D** $\frac{77}{16}$

Q5. One side of a rhombus is 20cm long and one of its diagonals measure 24cm. The area of the rhombus is: **1 Mark**

A $192cm^2$ **B** $480cm^2$ **C** $240cm^2$ **D** $384cm^2$.

Q6. To draw a pair of tangents to a circle which are inclined to each other at an angle of 45º, it is required to draw tangents at the endpoints of the two radii of the circle, which are inclined at an angle of: **1 Mark**

A 105º **B** 135º **C** 130º **D** 125º

Q7. In a circle of radius 21 cm, an arc subtends an angle of 60° at the centre the length of the arc is 22 cm: **1 Mark**

A True **B** False **C** Neither **D** Either

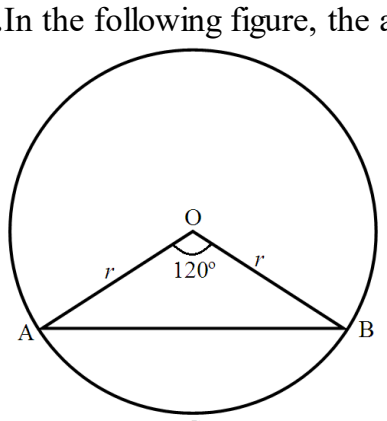
Q8. Fixed point in the circle is called _____ of the circle: **1 Mark**

A Radius **B** Centre **C** Diameter **D** None

Q9. If the sum of the areas of two circles with radii r_1 and r_2 is equal to the area of a circle of radius r, then: **1 Mark**

A $r = r_1 + r_2$ **B** $r_1^2 + r_2^2 = r^2$ **C** $r_1 = r_2 < r$ **D** $r_1^2 + r_2^2 < r^2$

Q10. In the following figure, the area of segment ACB is: **1 Mark**



C

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

Q11. The part of the circular region enclosed by two radii and the corresponding arc of a circle is called: **1 Mark**

A A segment **B** A radius **C** A sector **D** A chord

Q12. If the circumference of a circle increases from 4π to 8π, then its area is: **1 Mark**

A Halved. **B** Halved. **C** Tripled. **D** Quadrupled.

Q13. The area of a circle is 2464 sq.cm, then its diameter is given by: **1 Mark**

A 28cm **B** 7cm **C** 56cm **D** 14cm

Q14. Area of a sector of angle p (in degrees) of a circle with radius R is: **1 Mark**

A $\frac{p}{720} \times 2\pi R^2$ **B** $\frac{p}{180} \times 2\pi R$ **C** $\frac{p}{360} \times 2\pi R$ **D** $\frac{p}{180} \times \pi R^2$

Q15. If the difference between the circumference and the radius of a circle is 37 cm, then using $\pi = \frac{22}{7}$, the circumference (in cm) of the circle is: **1 Mark**

A 154 **B** 14 **C** 44 **D** 7

Q16. If the radius of a circle is diminished by 10%, then its area is diminished by: **1 Mark**

A 10% **B** 19% **C** 20% **D** 36%

Q17. The radius of a wheel is 0.25m. How many revolutions will it make in covering 11km? **1 Mark**

A 4000 **B** 2800 **C** 5500 **D** 7000

Q18. If the difference between the circumference and radius of a circle is 37cm, then using $\pi = \frac{22}{7}$ the circumference (in cm) of the circle is: **1 Mark**

A 154 **B** 44 **C** 14 **D** 7

Q19. The perimeter of a circular field is 242m. The area of the field is: **1 Mark**

A 9317m^2 **B** 18634m^2 **C** 4658.5m^2 **D** None of these

Q20. If π is taken as $\frac{22}{7}$, the distance (in metres) covered by a wheel of diameter 35cm, in onerevolution, is: **1 Mark**

A 2.2 **B** 1.1 **C** 9.625 **D** 96.25

Q21. The area of an equilateral triangle is $4\sqrt{3}\text{cm}^2$. Its perimeter is: **1 Mark**

A 9cm **B** 12cm **C** $12\sqrt{3}$cm **D** $6\sqrt{3}$cm

Q22. The sides of a triangle are in the ratio 12 : 14 : 25 and its perimeter is 25.5cm. The largest side of the triangle is: **1 Mark**

A 7cm **B** 14cm **C** 12.5cm **D** 18cm.

Q23. The area of a circular path of uniform width h surrounding a circular region of radius r is: **1 Mark**

A $\pi(2\text{r} + \text{h})\text{r}$ **B** $\pi(2\text{r} + \text{h})\text{h}$ **C** $\pi(\text{h} + \text{r})\text{r}$ **D** $\pi(\text{h} + \text{r})\text{h}$

Q24. The circumference of a sector of angle 60^o of a circle with radius 10cm is: **1 Mark**

A $\frac{200}{21}$cm **B** $\frac{20}{21}$cm **C** $\frac{220}{21}$cm **D** None of these

Q25. The angle described by the hour hand in 2 hours is: **1 Mark**

A 60^o **B** 360^o **C** 90^o **D** 30^o

Q26. The circumferences of two circles are in the ratio 3 : 4. The ratio of their areas is: **1 Mark**

A 3 : 4 **B** 4 : 3 **C** 9 : 16 **D** 16 : 9

Q27. Each side of an equilateral triangle is $6\sqrt{3}$cm. The altitude of the triangle is: **1 Mark**

A 8cm **B** 9cm **C** $3\sqrt{3}$cm **D** 6cm.

Q28. If the difference between the circumference and radius of a circle is 37cm, then its area is: **1 Mark**

A 154cm^2 **B** 160cm^2 **C** 200cm^2 **D** 150cm^2

Q29. The area of a sector whose perimeter is four times its radius r units, is: **1 Mark**

A $\frac{\text{r}^2}{4}$sq. units **B** 2r^2sq. units **C** r^2sq. units **D** $\frac{\text{r}^2}{2}$sq. units

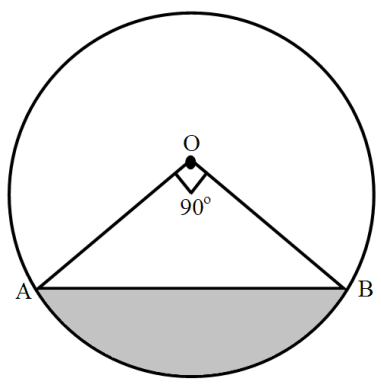
Q30. The areas of two circles are in the ratio 9 : 4. The ratio of their circumferences is: **1 Mark**

A 3 : 2 **B** 4 : 9 **C** 2 : 3 **D** 81 : 16

Q31. On increasing the diameter of a circle by 40%, its area will be increased by: **1 Mark**

A 40% **B** 80% **C** 96% **D** 82%

Q32. In the following figure, the shaded area is: **1 Mark**



A $50(\pi - 2)\text{cm}^2$ **B** $25(\pi - 2)\text{cm}^2$ **C** $25(\pi + 2)\text{cm}^2$ **D** $5(\pi - 2)\text{cm}^2$

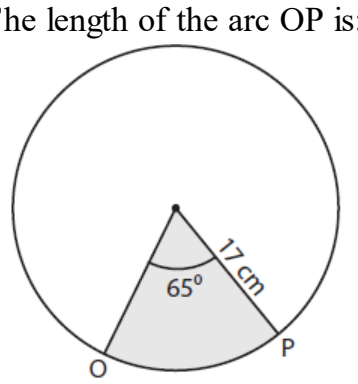
Q33. If the radius of the circle is $7\sqrt{\pi\ \text{cm}}$, then its area is: **1 Mark**

A 98 sq. cm **B** 49 sq. cm **C** 45 sq. cm **D** 22 sq. cm

Q34. If the perimeter of a circle is equal to that of a square, then the ratio of their areas is: **1 Mark**

A 22 : 7 **B** 14 : 11 **C** 7 : 22 **D** 11 : 14

Q35. The length of the arc OP is: **1 Mark**



A 16.28cm **B** 12.28cm **C** 15.28cm **D** 19.28cm

Q36. What is the area of a quadrant of a circle with radius 'r' units? **1 Mark**

A πr^2 **B** $\pi r^2 / 4$ **C** $\pi r^2 / 2$ **D** $2 \pi r^2$

Q37. Directions: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as: **1 Mark**

Assertion: The diameter of a wheel is 4.2m. It makes 75 revolutions in one minute. The speed of the wheel is 59, $\frac{\text{km}}{\text{h}}$

Reason: Distance travelled in one minute = Circumference ×Number of revolutions in one minute.

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 but 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.

Q38. Directions: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as: **1 Mark**

Assertion (A): In a circle of radius 6cm, the angle of a sector is 60°. Then the area of the sector is $\frac{132}{7}\text{cm}^2$

Reason (R): Area of the circle with radius r is πr^2

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 but 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.

Q39. Directions: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as: **1 Mark**

Assertion: If a wire of length 22cm is bent is the shape of a circle, then area of the circle so formed is 40cm.

Reason: Circumference of the circle = length of the wire.

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 but 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.

Q40. Directions: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as: **1 Mark**

Assertion (A): A bicycle wheel makes 5000 revolutions in covering 11km. Then diameter of the wheel is 35cm.

Reason (R): Arca of segment of a circle is $\frac{\theta}{360} \times \pi r^2 - \frac{1}{2} r^2 \sin\theta$.

A BothA and R are true and R is the correct explanation for A.

B Both A and R are true and R is not the correct explanation for A. **C** A is true but Ri s false.

D A is false but R is true.

Q41. Directions: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as: **1 Mark**

Assertion: If the circumference of a circle is 176cm, then its radius is 28cm.

Reason: Circumference $= 2\pi \times$ radious

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 but 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.

Q42. Directions: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as: **1 Mark**

Assertion: If the circumference of two circles are in the ratio 2 : 3, then ratio of their areas is 4 : 9.

Reason: The circumference of a circle of radius r is $2\pi r$ and its area is πr^2

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 but 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.

Q43. **1 Mark**

Directions: In the following questions, a statement of assertion (A) is followed by a statement of reason (R).
Mark the correct choice as:
Assertion (A): The length of the minute hand of a clock is 7 cm. Then the area swept by the minute hand in 5 minutes is $12\frac{5}{6}\text{cm}^2$.
Reason (R): 'Lhe length of an arc of a sector of angle θ and radius 7 is given by $\text{l} = \frac{\theta}{360} \times 2\pi\text{r}$.

A BothA and R are true and R is the correct explanation for A.
B Both A and R are true and R is not the correct explanation for A.
C A is true but Ri s false.
D A is false but R is true.

Q44.Directions: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). **1 Mark**
Mark the correct choice as:
Assertion (A): The length of the minute hand of a clock is 7cm.Then the area swept by the minute hand in 5 minute is $\frac{77}{6}\text{cm}^2$
Reason (R): The length of an arc of a sector of angle q and radius r is given by $\text{l} = \frac{\theta}{360^\circ} \times 2\pi\text{r}$

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 but 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.

Q45.Directions: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). **1 Mark**
Mark the correct choice as:
Assertion: If the outer and inner diameter of a circular path is 10m and 6m then area of the path is $16\pi\ \text{m}^2$
Reason: If R and r be the radius of outer and inner circular path $= \pi(\text{R}^2 - \text{r}^2)$

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 but 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.

Q46. What is the area of a segment of a circle with radius r and angle subtended at the centre is 120^0? **1 Mark**

A $\frac{\pi r^2}{3} - \frac{\sqrt{3}a^2}{2}$
B $\frac{\pi r^2}{3} - \frac{\sqrt{3}a^2}{4}$
C $\frac{\pi r^2}{6} - \frac{\sqrt{3}a^2}{4}$
D $\frac{\pi r^2}{3} - \frac{\sqrt{3}a^2}{2}$

Q47. What is the area of a segment of a circle with radius r and angle subtended at the centre is 60^0? **1 Mark**

A $\frac{\pi r^2}{6} - \frac{\sqrt{3}r^2}{2}$
B $\frac{\pi r^2}{3} - \frac{\sqrt{3}r^2}{2}$
C $\frac{\pi r^2}{6} - \frac{r^2}{2}$
D $\frac{\pi r^2}{4} - \frac{\sqrt{3}a^2}{2}$