CIRCLES

MCQs & A and R WORK SHEET

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

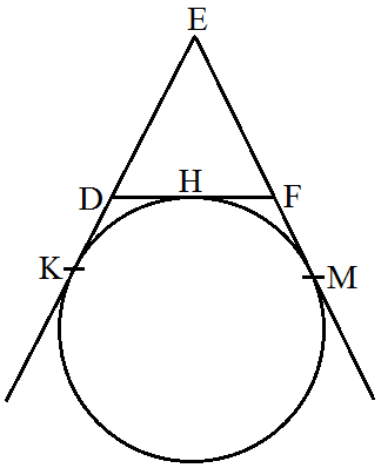
Student Name: ..... **Section:** ..... **Roll No.:** .....

Questions: 45 **Time: 01:00 hh:mm** **Negative Marks: 0** **Marks: 45**

Instructions

1. MULTIPLE CHOICE QUESTIONS.

Q1. In Fig 2, a circle touches the side DF of $\angle EDF$ at hand touches ED and EF produced at K and M respectively. If EK = 9cm, then the perimeter of $\triangle EDF$ (in cm) is: **1 Mark**



A 18 **B** 13.5 **C** 12 **D** 9

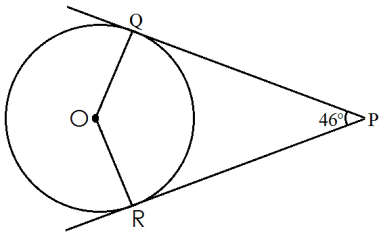
Q2. Two concentric circles of radii 3cm and 5cm are given. Then length of chord BC which touches the inner circle at P is equal to: **1 Mark**

A 4cm **B** 6cm **C** 8cm **D** 10cm

Q3. The length of the tangent drawn from a point 8 cm away from the centre of a circle of radius 6 cm is: **1 Mark**

A $\sqrt{7}$cm **B** $2\sqrt{7}$cm **C** 10cm **D** 5cm

Q4. In the figure, PQ and PR are two tangents to a circle with centre O. If $\angle QPR = 46^\circ$ then $\angle QOR$ equals: **1 Mark**



A 67° **B** 134° **C** 44° **D** 46°

Q5. In Fig. 1, O is the centre of a circle, AB is a chord and AT is the tangent at. If $\angle AOB = 100^\circ$ then $\angle BAT$ is equal to: **1 Mark**

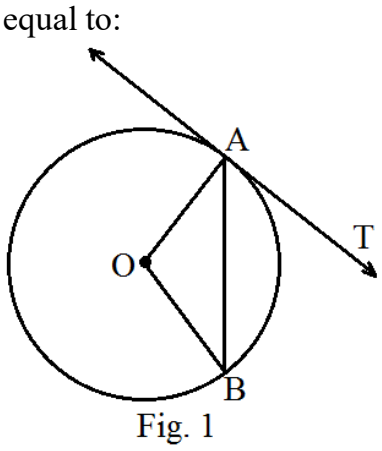
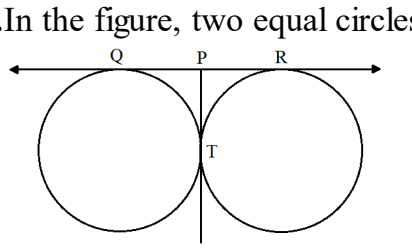


Fig. 1

A 100° **B** 40° **C** 50° **D** 90°

Q6. In the figure, two equal circles touch each other at T, if QP = 4.5cm, then QR = **1 Mark**



A 9cm **B** 18cm **C** 15cm **D** 13.5cm

Q7. In Figure 1, AP, AQ and BC are tangents to the circle. If AB = 5cm, AC = 6cm and BC = 4cm, then the length of AP (in cm) is: **1 Mark**

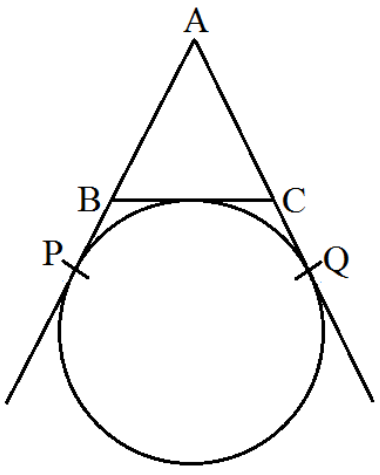
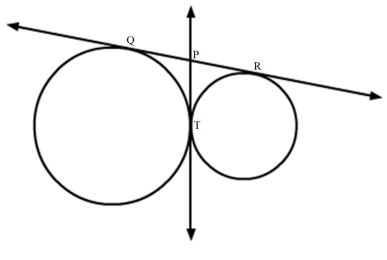


Figure 1

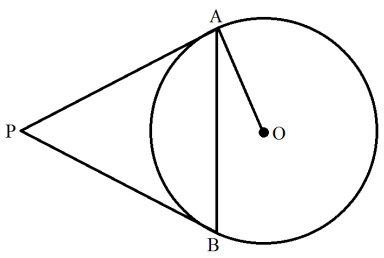
A 7.5 **B** 15 **C** 10 **D** 9

Q8. In the given figure, QR is a common tangent to the given circles touching externally at the point T. The tangent at T meets QR at P. If PT = 3.8cm, then the length of QR (in cm) is: **1 Mark**



A 3.8 **B** 7.6 **C** 5.7 **D** 1.9

Q9. In Fig. 2, PA and PB are tangents to the circle with centre O. If $\angle APB = 60^\circ$ then $\angle OAB$ is: **1 Mark**



A 30° **B** 60° **C** 90° **D** 15°

Q10. If PT is tahgent drawn froth a point P to a circle touching it at T and O is the centre of the circle, then $\angle OPT + \angle POT =$ **1 Mark**

A 30° **B** 60° **C** 90° **D** 180°

Q11. From a point Q, the length of the tangent to a circle is 24cm and the distance of Q from the centre is 25cm. The radius of the circle is: **1 Mark**

A 7cm **B** 12cm **C** 15cm **D** 24.5cm

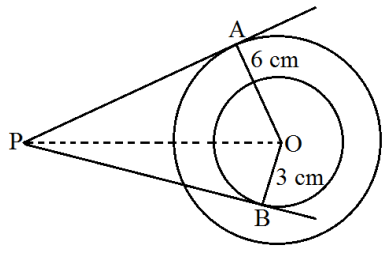
Q12. PQ is a tangent drawn from a point P to a circle with centre O and QOR is a diameter of the circle such that $\angle POR = 120^\circ$ then $\angle OPQ$ is: **1 Mark**

A 60° **B** 45° **C** 30° **D** 90°

Q13. Two circles touch each other externally at P. AB is a common tangent to the circle touching them at A and B. The value of $\angle APB$ is: **1 Mark**

A 30° **B** 45° **C** 60° **D** 90°

Q14. In the figure, if AP = 10cm, then BP = **1 Mark**



A $\sqrt{91}$cm **B** $\sqrt{127}$cm **C** $\sqrt{119}$cm **D** $\sqrt{109}$cm

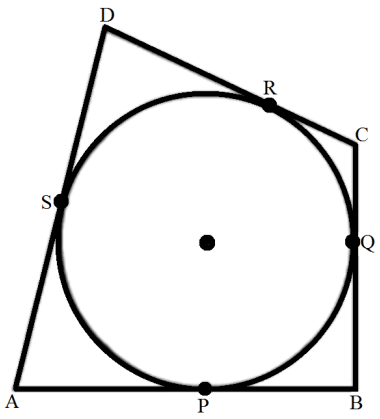
Q15. AP and AQ are tangents drawn from a point A to a circle with centre O and radius 9cm. If OA = 15cm, then AP + AQ = **1 Mark**

A 12cm **B** 18cm **C** 24cm **D** 36cm

Q16. At one end A of a diameter AB of a circle of radius 5cm, tangent XAY is drawn to the circle. The length of the chord CD parallel to XY and at a distance 8cm from A is: **1 Mark**

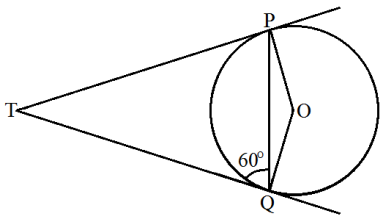
A 4cm **B** 5cm **C** 6cm **D** 8cm

Q17. In the figure, a quadrilateral ABCD is drawn to circumscribe a circle such that its sides AB, BC, CD and AD touch the circle at P, Q, R and S respectively. If AB = x cm, BC= 7cm, CR = 3cm and AS = 5cm, then x = **1 Mark**



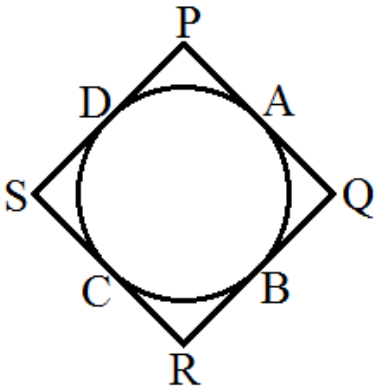
A 10 **B** 9 **C** 8 **D** 7

Q18. In the figure, if TP and TQ are tangents drawn from an external point T to a circle with centre O such that $\angle TQP = 60°$, then: **1 Mark**



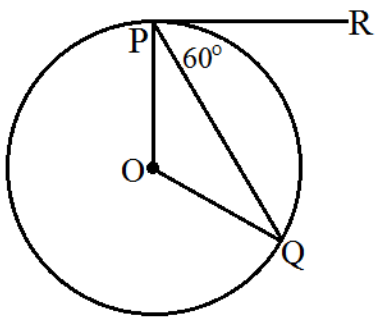
A 25° **B** 30° **C** 40° **D** 60°

Q19. In the given figure, if quadrilateral PQRS circumscribes a circle, then PD + QB = **1 Mark**



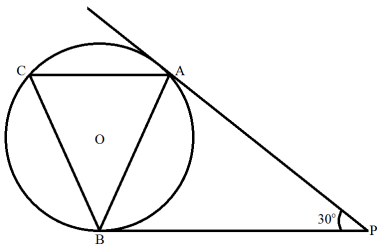
A PQ **B** QR **C** PR **D** PS

Q20. In the figure, if PR is tangent to the circle at P and Q is the centre of the circle, then $\angle POQ$ = **1 Mark**



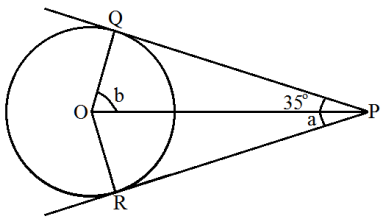
A 110° **B** 100° **C** 120° **D** 90°

Q21. In the figure, if tangents PA and PB are drawn to a circle such that $\angle APB = 30°$ and chord AC is drawn parallel to the tangent PB, then $\angle ABC$ = **1 Mark**



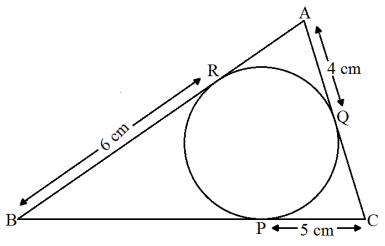
A 60° **B** 90° **C** 30° **D** None of these

Q22. In the given figure, PQ and PR are tangents drawn from P to a circle with centre O. If $\angle OPQ = 35°$, then: **1 Mark**



A a= 30°, b= 60° **B** a= 35°, b = 55° **C** a= 40°, b = 50° **D** a= 45°, b = 45°

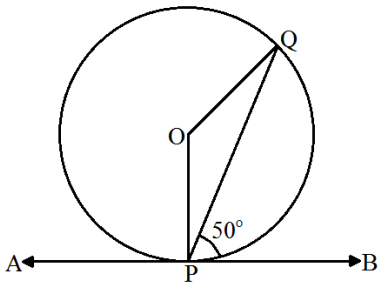
Q23. In the figure, the perimeter of $\triangle ABC$ is: **1 Mark**



A 30cm **B** 60cm **C** 45cm **D** 15cm

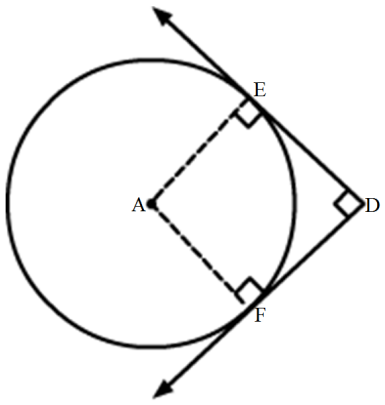
Q24. **1 Mark**

In the figure, APB is a tangent to a circle with centre O at point P. If $\angle QPB = 50^\circ$ then the measure of $\angle POQ$ is:



A 100° **B** 120° **C** 140° **D** 150°

Q25. In the given figure, DE and DF are tangents from an external point D to a circle with centre A. If DE = 5cm and DE ⊥ DF, then the radius of the circle is: **1 Mark**

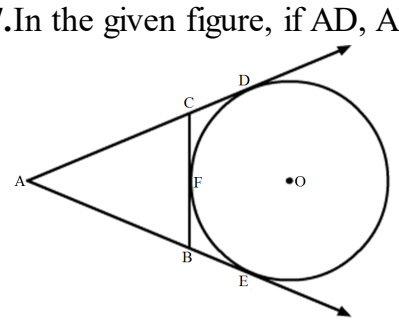


A 3cm **B** 5cm **C** 4cm **D** 6cm

Q26. In a right triangle ABC, right angled at B, BC = 12cm and AB = 5cm. The radius of the circle inscribed in the triangle (in cm) is: **1 Mark**

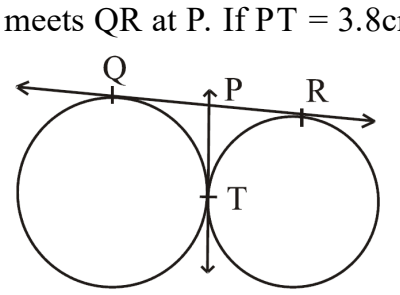
A 4 **B** 3 **C** 2 **D** 1

Q27. In the given figure, if AD, AE and BC are tangents to the circle at D, E and F respectively, Then: **1 Mark**



A AD = AB + BC + CA **B** 2AD = AB + BC + CA **C** 3AD = AB + BC + CA **D** 4AD = AB + BC + CA

Q28. In Fig. 1, QR is a common tangent to the given circles, touching externally at the point T. The tangent at T meets QR at P. If PT = 3.8cm, then the length of QR (in cm) is: **1 Mark**

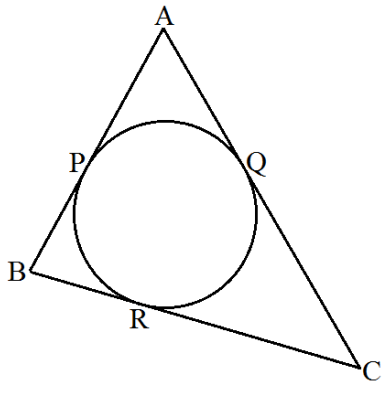


A 3.8 **B** 7.6 **C** 5.7 **D** 1.9

Q29. At one end of a diameter PQ of a circle of radius 5cm, tangent XPY is drawn to the circle. The length of chord AB parallel to XY and at distance of 8cm from P is: **1 Mark**

A 5cm **B** 6cm **C** 7cm **D** 8cm

Q30. In the figure, if AP = PB, then: **1 Mark**

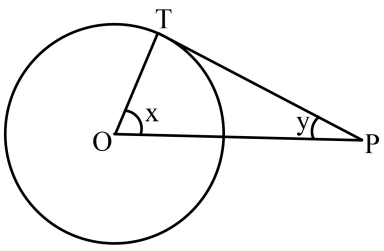


A AC = AB **B** AC = BC **C** AQ = QC **D** AB = BC

Q31. In a right triangle ABC, right-angled at B, BC = 12cm and AB = 5cm. The radius of the circle inscribed in the triangle (in cm) is: **1 Mark**

A 4 **B** 3 **C** 2 **D** 1

Q32. If PT is a tangent to the circle with centre O, then x + y is equal to: **1 Mark**



A 90° **B** 60° **C** 75° **D** 100°

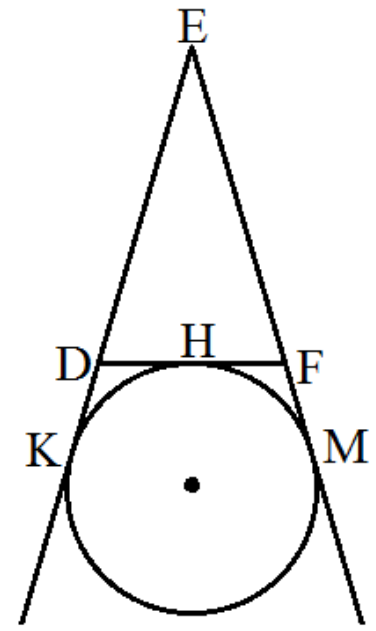
Q33. In the given figure, there are two concentric circles with centre O. PR and PQS are tangents to the inner circle from point plying on the outer circle. If PR = 7.5cm, then PS is equal to: **1 Mark**

A 10cm **B** 12cm **C** 15cm **D** 18cm

Q34. The length of the tangent from a point A at a circle, of radius 3 cm, is 4 cm. The distance of A from the centre of the circle is: **1 Mark**

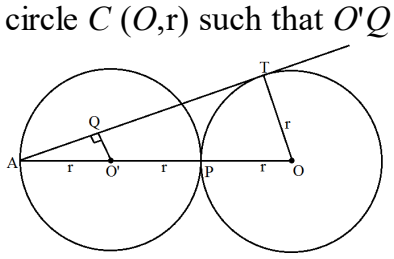
A $\sqrt{7}$cm **B** 7cm **C** 5cm **D** 25cm

Q35. In the figure, a circle touches the side DF of $\triangle EDF$ at H and touches ED and EF produced at K and M respectively. If EK = 9cm, then the perimeter $\triangle EDF$ of is: **1 Mark**



A 18cm **B** 13.5cm **C** 12cm **D** 9cm

Q36. Two circles of same radii r and centres O and O' touch each other at P as shown in. If $O\,O'$ is produced to meet the circle C (O', r) at A and AT is a tangent to the circle C (O,r) such that $O'Q \perp AT$. Then AO: AO' = **1 Mark**



A 3/2 **B** 2 **C** 3 **D** 1/4

Q37. In Fig.2, a circle with centre O is inscribed in a quadrilateral ABCD such that, it touches the sides BC, AB, AD and CD at points P, Q, R and S respectively, If AB = 29cm, AD = 23cm, $\angle B = 90^\circ$ and DS = 5cm, then the radius of the circle (in cm.) is: **1 Mark**

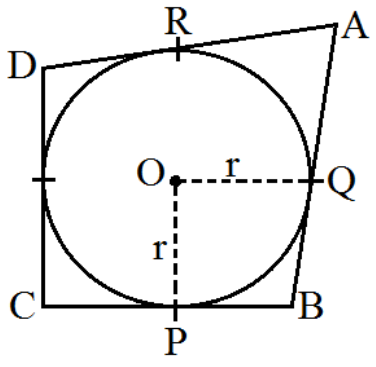
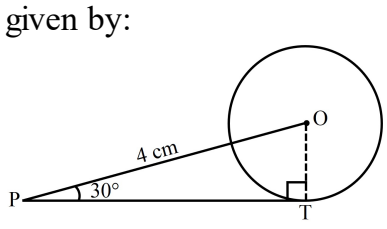


Fig. 2

A 11 **B** 18 **C** 6 **D** 15

Q38. In figure, PT is tangent to the circle with centre O such that OP is 4cm and $\angle OPT = 30^\circ$ length of tangent is given by: **1 Mark**

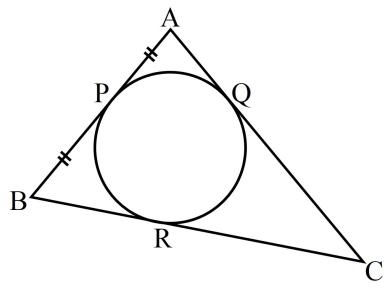


A $4\sqrt{3}$cm **B** 7cm **C** 5cm **D** $2\sqrt{3}$cm

Q39. From a point P which is at a distance 13cm from the centre O of a circle of radius 5cm, the pair of tangent PQ and PR to the circle are drawn. Then the area of the quadrilateral PQOR is: **1 Mark**

A 60cm^2 **B** 65cm^2 **C** 30cm^2 **D** 32.5cm^2

Q40. In the given figure, if AP = PB, then AC = **1 Mark**



A AC = BC **B** AB = BC **C** AQ = QC **D** AC = AB

Q41. Each question consists of two statements, namely, Assertion (A) and Reason (R). for selecting the correct answer, use the following code: **1 Mark**

Assertion (A)	**Reason (R)**
If two tangent are drawn to a circle from an external point then they subtend equal angles at the centre.	A parallelogram circumscribing a circle is a rhombus.

A Both Assertion (A) and Reason (R) are true and Reason (R) is a correct explanation of Assertion (A).

B Both Assertion (A) and Reason (R) are true but Reason (R) is not a correct explanation of Assertion (A).

C Assertion (A) is true and Reason (R) is false. **D** Assertion (A) is false and Reason (R)is true.

Q42. 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: The secant of circle is perpendicular to the radius of the circle.

Reason: A line that intersects the given circle in two points is called a secant.

A Assertion and Reason both are correct statements and Reason is the correct explanation of Assertion.

B Assertion and Reason both are correct statements but Reason is not the correct explanation of Assertion.

C Assertion is correct statement but Reason is wrong statement.

D Assertion is wrong statement but Reason is correct statement.

Q43. 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: At a point P of a circle with centre O and radius 12cm, a tangent PQ of length 16cm is drawn.Then, OQ = 20cm.

Reason: The tangent at any point of a circle is perpendicular to the radius through the point of contact.

A Assertion and Reason both are correct statements and Reason is the correct explanation of Assertion.

B Assertion and Reason both are correct statements but Reason is not the correct explanation of Assertion.

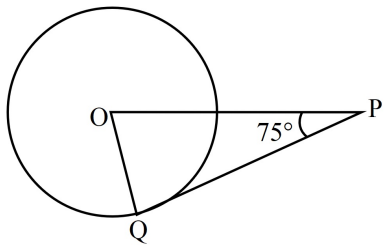
C Assertion is correct statement but Reason is wrong statement.

D Assertion is wrong statement but Reason is correct statement.

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: In the given figure, if PQ is a tangent to the circle with centre O, then the value of $\angle POQ$ is 25°



Reason: If two tangents are drawn to a circle from an external point, then they subtend equal angles at the centre

A Assertion and Reason both are correct statements and Reason is the correct explanation of Assertion.

B Assertion and Reason both are correct statements but Reason is not the correct explanation of Assertion.

C Assertion is correct statement but Reason is wrong statement.

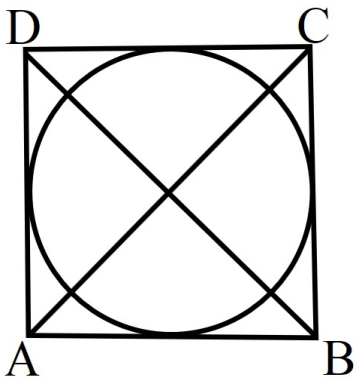
D Assertion is wrong statement but Reason is correct statement.

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: In the given figure, all the sides of a quadrilateral ABCD touch a circle with centre O. Then, $\angle AOB + \angle COD = 180^\circ$

Reason: The opposite sides of a quadrilateral circumscribing a circle does not subtend supplementary angles at the centre of the circle.



1. Assertion and Reason both are correct statements and Reason is the correct explanation of Assertion.
2. Assertion and Reason both are correct statements but Reason is not the correct explanation of Assertion.
3. Assertion is correct statement but Reason is wrong statement.
4. Assertion is wrong statement but Reason is correct statement.

A Assertion and Reason both are correct statements and Reason is the correct explanation of Assertion.

B Assertion and Reason both are correct statements but Reason is not the correct explanation of Assertion.

C Assertion is correct statement but Reason is wrong statement.

D Assertion is wrong statement but Reason is correct statement.