

THE O.P. GUPTA

ADVANCED MATH CLASSES

Mathematics (Standard & Basic)

Topic - Circles

RTS-10



FOR ANSWERS

RANKERS

TEST SERIES FOR X

Max. Marks - 40

Time - 90 Minutes

SECTION A

Followings multiple choice questions are of **1 Mark** each (Q01-10).

Select the correct option in each one of them.

- Q01. The perpendicular distance between the center of a circle and a chord is 4 cm. If the radius of the circle is 5 cm, then the length of the chord is
(A) 6 cm (B) 8 cm (C) 9 cm (D) 10 cm
- Q02. If two tangents are drawn to a circle from an external point, then they are
(A) Unequal (B) Parallel (C) Always equal (D) Perpendicular
- Q03. The length of the tangent drawn from a point 5 cm away from the center of a circle of radius 3 cm is
(A) 3 cm (B) 4 cm (C) 5 cm (D) 6 cm
- Q04. The angle between a tangent to a circle and the radius drawn to the point of contact is
(A) 30° (B) 45° (C) 60° (D) 90°
- Q05. From an external point (P), two tangents (PA and PB) are drawn to a circle with center O. If both the tangents make an angle of 60° with each other, then $\angle AOB$ is
(A) 60° (B) 90° (C) 120° (D) 150°
- Q06. If the length of a tangent from a point P to a circle is 12 cm and distance of P from the center is 13 cm, then the radius of the circle is
(A) 5 cm (B) 12 cm (C) 13 cm (D) 25 cm
- Q07. Two concentric circles have radii 5 cm and 3 cm. The length of the chord of the larger circle which touches the smaller circle is
(A) 4 cm (B) 6 cm (C) 8 cm (D) 10 cm
- Q08. If a circle touches the three sides of a triangle, the circle is called
(A) Circumcircle (B) Incircle (C) Semi-circle (D) Excircle

Followings are **Assertion-Reason based questions** (Q09 & 10).

In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R).

Choose the correct answer out of the following choices.

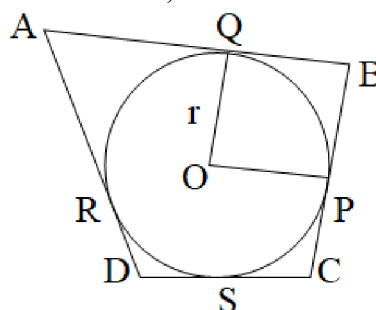
- (A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true and R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.
- Q09. **Assertion (A)** : Infinite number of tangents can be drawn from an external point.
Reason (R) : If two circles touch each other externally, the distance between their centers is equal to sum of their radii.
- Q10. **Assertion (A)** : The tangent at any point of a circle is perpendicular to the radius through the point of contact.
Reason (R) : The shortest distance from the center of a circle to the tangent is along the radius.

[1×10 = 10]

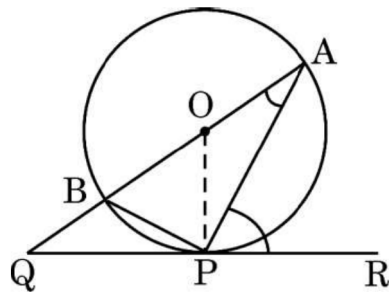
SECTION B

Followings are of **2 Marks** each (Q11-12).

- Q11. In the figure given below, a circle is inscribed in a quadrilateral ABCD in which $\angle B = 90^\circ$. If $AD = 17$ cm, $AB = 20$ cm and $DS = 3$ cm, find the radius r of the circle.

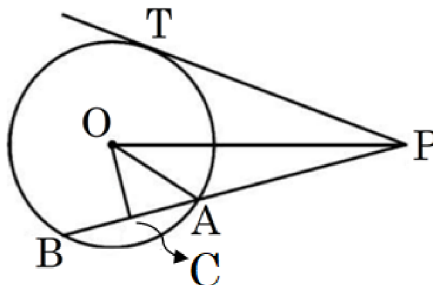


- Q12. (a) In the given figure, O is the centre of the circle and QPR is a tangent to it at P. Prove that $\angle QAP + \angle APR = 90^\circ$.



OR

- (b) In the given figure, PT is a tangent to the circle centered at O. OC is perpendicular to chord AB. Prove that $PA \cdot PB = PC^2 - AC^2$.

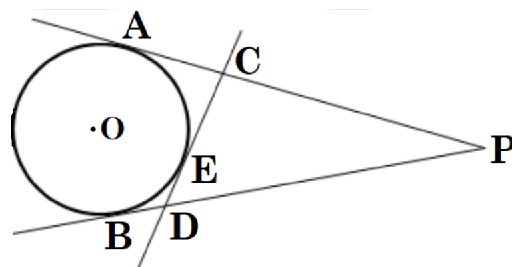


[2 × 2 = 4]

SECTION C

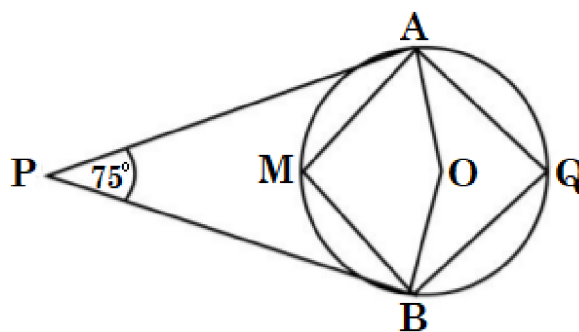
Followings are of **3 Marks** each (Q13-16).

- Q13. (a) From an external point P, two tangents PA and PB are drawn to a circle with centre O. At a point E on the circle, a tangent is drawn to intersect PA and PB at C and D, respectively. If PA = 10 cm, find the perimeter of $\triangle PCD$.



OR

- (b) In the given figure, 'O' is the centre of the circle. Determine $\angle AQB$ and $\angle AMB$, if PA and PB are the tangents and $\angle APB = 75^\circ$.



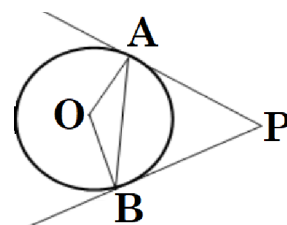
- Q14. If a hexagon ABCDEF circumscribes a circle, show that $AB + CD + EF = BC + DE + FA$.
- Q15. Two tangents PA and PB are drawn to a circle with center O from an external point P. Prove that $\angle APB = 2(\angle OAB)$.
- Q16. Show that parallelogram circumscribing a circle is a rhombus.

[3 × 4 = 12]

SECTION D

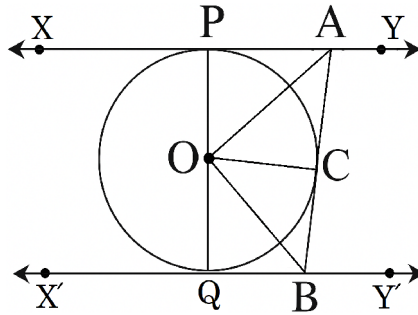
Followings are of **5 Marks** each (Q17-18).

- Q17. (a) PA and PB are tangents drawn to a circle of centre O from an external point P. Chord AB makes an angle of 30° with the radius at the point of contact. If the length of the chord is 6 cm, find the length of the tangent PA and the length of the radius OA.



OR

(b) In figure, XY and $X'Y'$ are two parallel tangents to a circle with center O and another tangent AB with point of contact C intersecting XY and $X'Y'$ at A and B respectively. Prove that $\angle AOB = 90^\circ$.



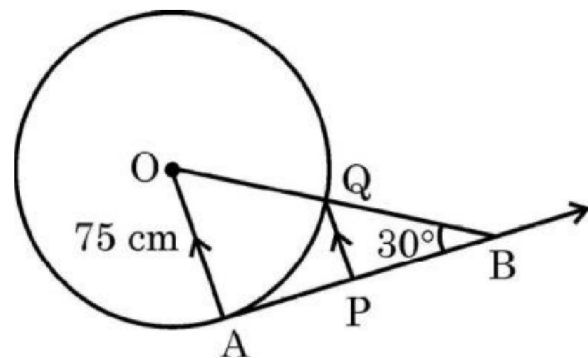
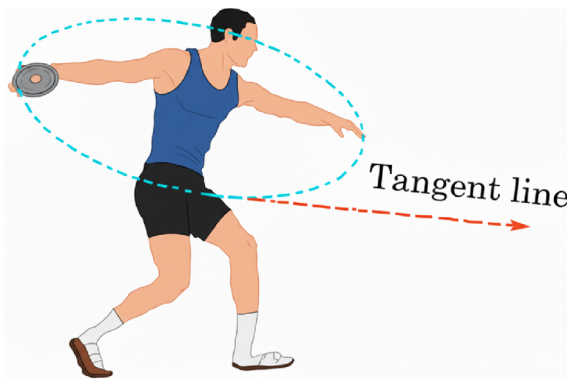
Q18. Prove that the line segment joining the points of contact of two parallel tangents passes through the centre.

[$5 \times 2 = 10$]

SECTION E

Following is a case-study based question of 4 Marks (Q19); having three sub-parts (i), (ii) and (iii).

Q19. **CASE STUDY BASED QUESTION :** The discus throw is an event in which an athlete attempts to throw a discus. The athlete spins anti-clockwise around one and a half times through a circle, then releases the throw. When released, the discus travels along tangent to the circular spin orbit.



In the given figure, AB is one such tangent to a circle of radius 75 cm. Point O is centre of the circle and $\angle ABO = 30^\circ$. PQ is parallel to OA .

Based on the above information, answer the following questions.

- (i) Find the length of AB .
- (ii) Find the length of OB .
- (iii) Find the length of AP .

OR

- (iii) Find the length of PQ .

[$1 + 1 + 2 = 4$]

① **SHARE THIS FILE** with all other math scholars.

① You may Add our mobile no. +919650350480 to your WhatsApp Groups for regular updates.

① MS Word files of MCQ Tests / Subjective Tests / Case-Study Questions are available for SALE.

Grab the best Seller book for X, XI & XII Maths (041) CBSE Exams.

☑ **MATHMISSION FOR XII, XI & X**
(Refresher Guide with Competency Focused Questions)

✦ The books are developed as per CBSE Curriculum for 2025-26.

☑ **CBSE 39 SAMPLE PAPERS For Class XII**

☑ **CBSE YODDHA SAMPLE PAPERS For Class XI**

☑ **CBSE UMANG SAMPLE PAPERS For Class X**

(Order now at Discounted rate on WhatsApp - 9650350480)



Scan QR-Code to
Visit Amazon Store

MATHEMATICIA BY O.P. GUPTA

...a name you can bank upon!



Feel Safe to **Share this Document** with other math scholars

CLICK NOW

TO

Download



or, just type -
theopgupta.com

**FREE PDF TESTS AND
ASSIGNMENTS OF THE
CLASSES XII, XI & X**



To get **FREE PDF Materials**, join
WhatsApp Teachers Group
by Clicking on the Logo

Click on the
Book cover
to buy!



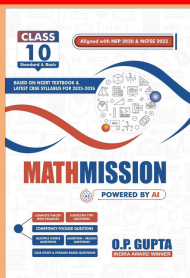
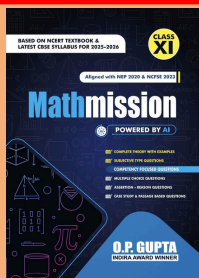
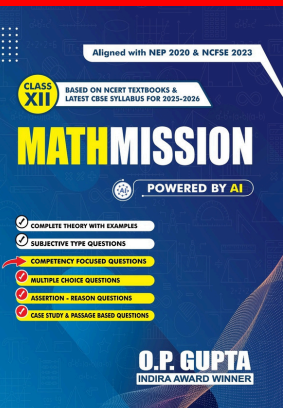
If you are a **Student**, then you may
join our **Students Group**

CLICK HERE FOR
**CLASSES
IX & X**

CLICK HERE FOR
**CLASSES
XI & XII**

You can add our WhatsApp no. **+919650350480** to your Groups also

Many **Direct Questions** from our Books have been asked in the recent CBSE Exams



**MATHMISSION
FOR XII, XI & X**
2025-26 Edition

Buy our
books on
amazon
Flipkart

/theopgupta /theopgupta /theopgupta /@theopgupta

For Bulk Orders of our Books at Discounted Price, contact on +91-9650350480