Worksheet 10.3

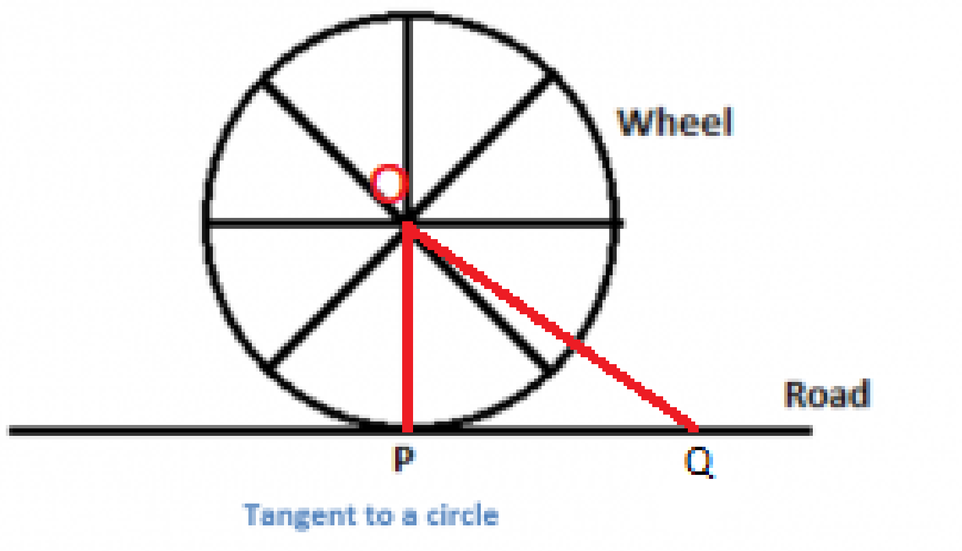
Marks - 25

Case study based questions

10th Maths

Circles

Passage - 1 **5 Marks**



Tangent to a circle

Imagine a bicycle moving on a road. If we look at its wheel, we observe that it touches the road at just one point.

Q 1. State true or false: There can be one and only one tangent through any given point on the circle.

(1) TRUE
(2) FALSE

Q 2. The radius through the point of contact with the ground appears to be at _____ to the tangent.

(1) Acute angle
(2) Obtuse angle
(3) Right angle
(4) NONE OF THESE

Worksheet 10.3

Marks - 25

Q 3. PQ is a tangent in the figure then

(1) OP perpendicular to PQ
(2) OP parallel to PQ
(3) Both A and B
(4) NONE OF THESE

Q 4. Tangent drawn at the ends of a diameter of a circle are _____.

(1) Perpendicular
(2) Intersecting
(3) Parallel
(4) Common

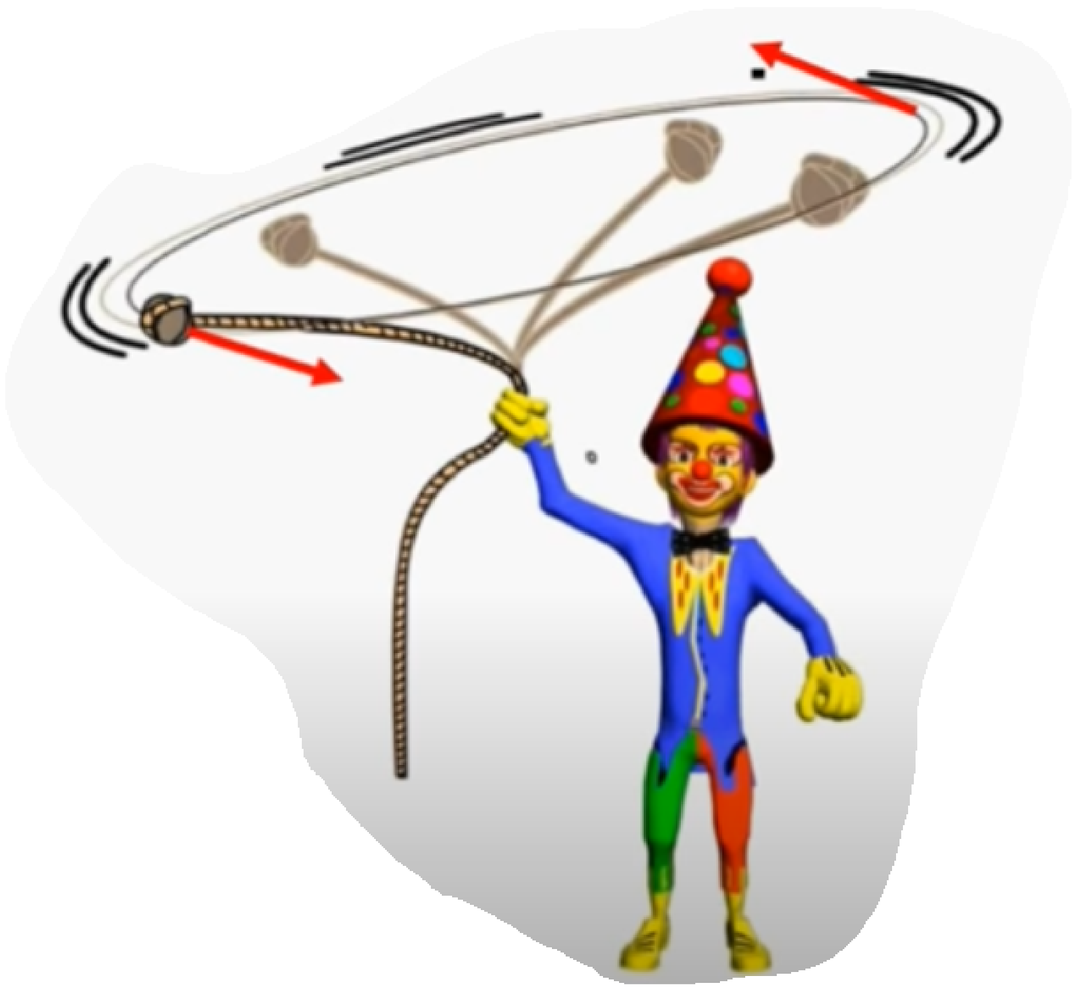
Q 5. The radius of the wheel is 5 cm and the length of OQ = 12 cm. Find the length of PQ?

(1) 12 cm
(2) 13 cm
(3) 8.5 cm
(4) $\sqrt{119}$ cm

Passage - 2 **5 Marks**

Worksheet 10.3

Marks - 25



You have tied a stone to a string and move it in the air in a circular path like this. If the string snaps at any moment, the stone will fly at any particular direction to the circular path.

Q 1. When the string snaps, the stone will fly at a particular direction which is _____ to the circular path.

(1) Tangent
(2) Perpendicular

Q 2. If a line is tangent to a circle, it is _____ to the radius drawn to the point of tangency.

(1) Parallel
(2) Perpendicular
(3) Both A and B
(4) NONE OF THESE

Q 3. Tangent line touches the circle at _____ point.

(1) Only one
(2) Two
(3) Both A and B
(4) NONE OF THESE

Q 4. State true or false: There can be one and only one tangent through any given point on the circle.

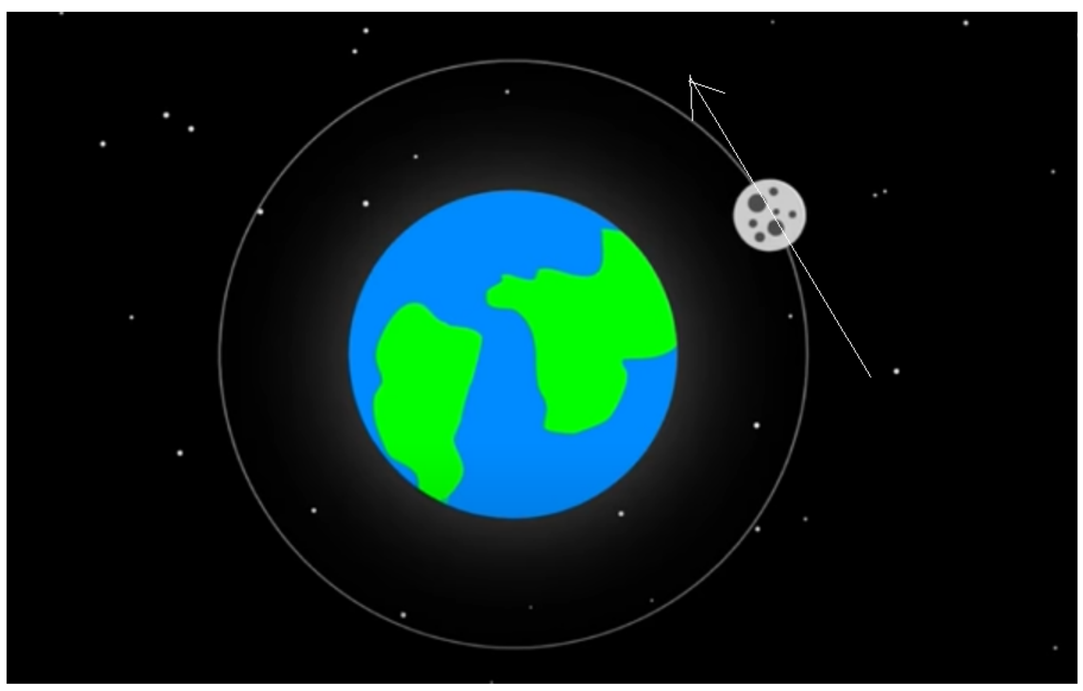
(1) TRUE
(2) FALSE

Q 5. The length of the tangent from a point at a distance 12 cm from the centre of the circular path is 5 cm. Find the radius of the circular path?

(1) 5 cm
(2) 4 cm
(3) $\sqrt{119}$
(4) NONE OF THESE

Passage - 3

5 Marks



Moon is revolving the earth but if you imagine it will look like it always tries to escape and take a path which is tangent to its orbit at that point and earth's gravity pulls it towards the earth so it keeps revolving around the earth.

Worksheet 10.3

Marks - 25

Q 1. If a line is tangent to a circle, it is _____ to the radius drawn to the point of tangency.

(1) Parallel
(2) Perpendicular
(3) Both A and B
(4) NONE OF THESE

Q 2. Tangent line touches the circle at _____ point.

(1) Only one
(2) Two
(3) Both A and B
(4) NONE OF THESE

Q 3. If two circles are externally and they do not touch, then find the number of common tangents.

(1) 1
(2) 2
(3) 3
(4) 4

Q 4. State true or false: In the figure, there are two concentric circles. The chord of the larger circle, which touches the smaller circle, is bisected at the point of contact.

(1) TRUE
(2) FALSE

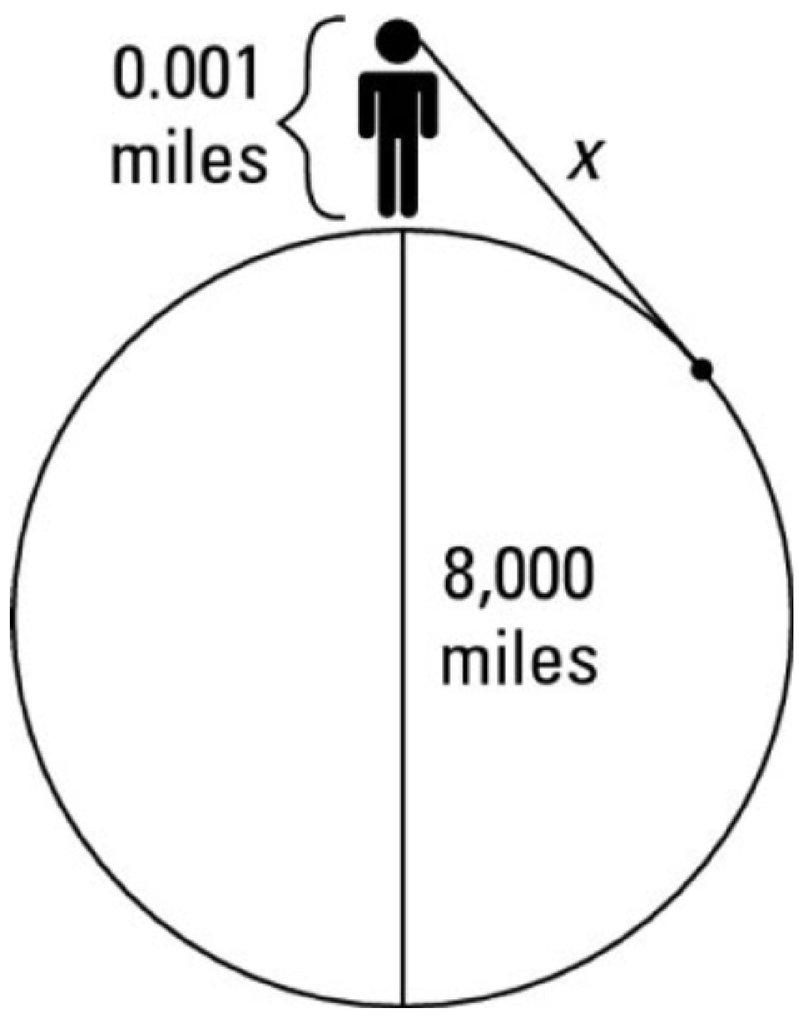
Worksheet 10.3

Marks - 25

Q 5. In two concentric circles, a chord of length 24 cm of larger circle becomes a tangent to the smaller circle whose radius is 5 cm. Find the radius of the larger circle.

(1) 11 cm
(2) 12 cm
(3) 13 cm
(4) 14 cm

Passage - 4 **5 Marks**



The average height of an adult shown in the figure about 5.3 feet above the ground, which is very close to $\frac{1}{1000}$ mile. The earth's diameter is about 8000 miles. And x in the figure represents the distance to the horizon.

Q 1. Tangent drawn at the end of the diameter of a circle are _____.

(1) Parallel
(2) Perpendicular
(3) Both A and B

---

(4) NONE OF THESE

Q 2. Tangent line touches the circle at _____ point.

(1) Only one
(2) Two
(3) Both A and B
(4) NONE OF THESE

Q 3. Calculate the value of x?

(1) 2 miles
(2) 2.5 miles
(3) 2.8 miles
(4) 3 miles

Q 4. State true or false: There can be one and only one tangent through any given point on the circle.

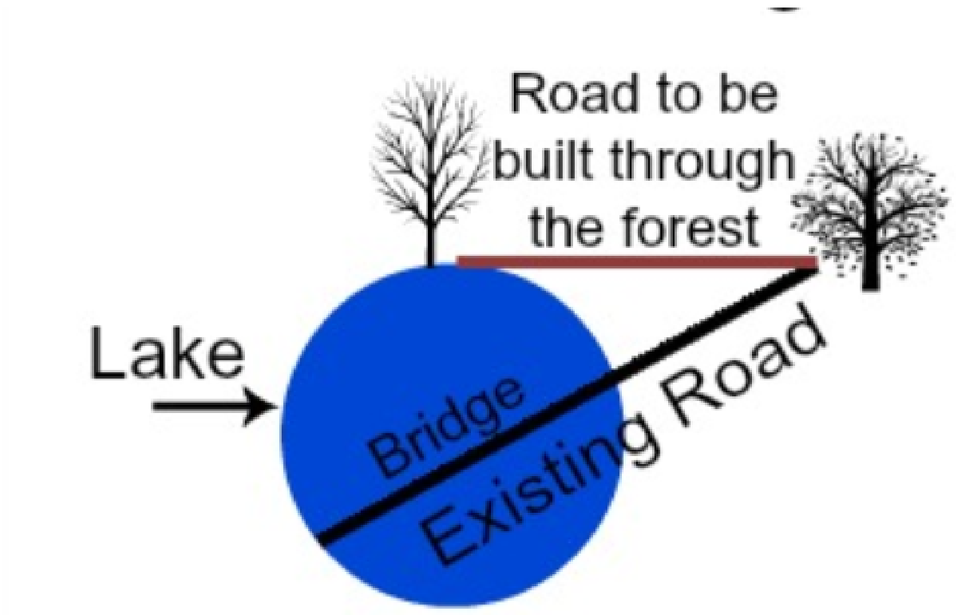
(1) TRUE
(2) FALSE

Q 5. If a point is inside the circle, how many tangents can be drawn from that point?

(1) 0
(2) 1
(3) 2
(4) 3

Worksheet 10.3

Marks - 25



Imagine you are working with a construction crew. A road already exists through a forest that goes over a circular lake. You want to build another road through a forest that connects to this road, but does not go through the lake. We call the road that already exists a secant segment of the circular lake, and we call the road you will be building a tangent segment of the circular lake.

Q 1. State true or false: The road you will be building just touches the circular lake at one point.

(1) TRUE
(2) FALSE

Q 2. Tangent line touches the circle at _____ point.

(1) Only one
(2) Two
(3) Both A and B
(4) NONE OF THESE

Q 3. The external secant segment is 4 km and the internal secant segment is 5 km. Find the value of tangent segment?

(1) 4 km
(2) 5 km
(3) 6 km

(4) 7 km

Q 4. If the external secant segment is 16 meters and the tangent segment is 20 meters, then find the length of internal secant segment.

(1) 20 km
(2) 22 km
(3) 25 km
(4) 26 km

Q 5. A line intersecting a circle in two points is called a _____.

(1) Tangent
(2) Secant

Worksheet 10.4

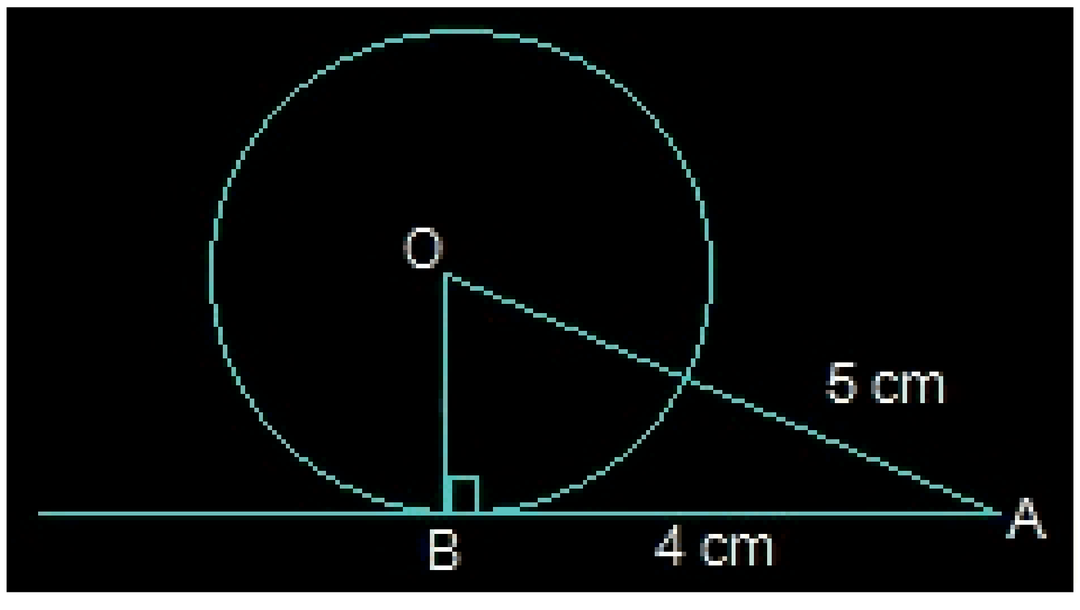
Marks - 25

Case study based questions

10th Maths

Circles

Passage - 1 **5 Marks**



Pinky draws a tangent from a point A at distance 5 cm from the centre of the circle is 4 cm. Observe the above figure and answer the below questions:

Q 1. What is the radius of the circle ?

(1) 2 cm
(2) 4 cm
(3) 5 cm
(4) 3 cm

Q 2. Is OB perpendicular to AB?

(1) YES
(2) NO

Q 3. What is the length OA in the above figure?

(1) 4 cm
(2) 5 cm

---

(3) 2 cm
(4) 1 cm

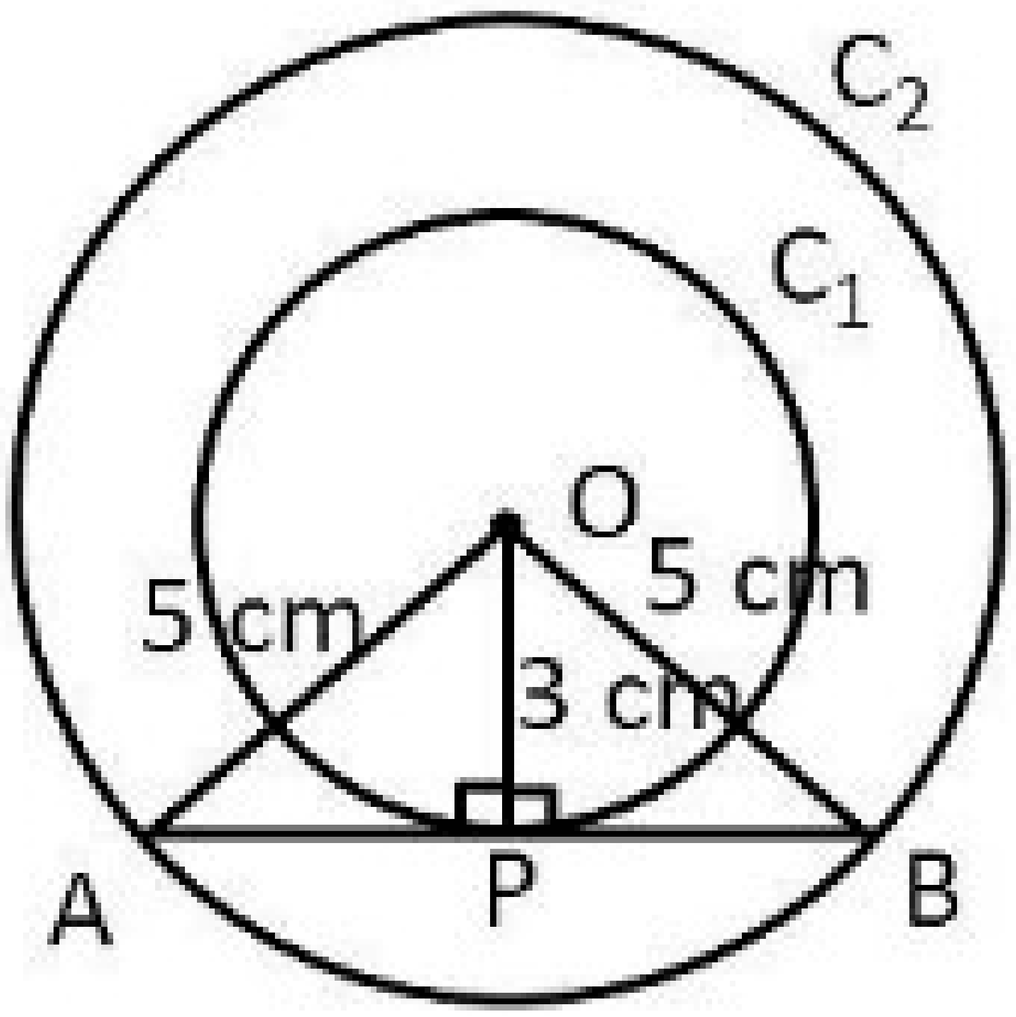
Q 4. What is the length AB in the above figure?

(1) 6 cm
(2) 4 cm
(3) 3 cm
(4) 2cm

Q 5. What is the tangent that is drawn on the circle from a point A?

(1) AB
(2) AO
(3) BO
(4) NONE OF THESE

Passage - 2 **5 Marks**



Worksheet 10.4

Marks - 25

Ravi draws two concentric circles with radii of 5 cm and 3 cm and draws the chords. Few questions came to his mind. Give answers to his questions by looking at the figure:

Q 1. Is OP perpendicular to AB?

(1) YES
(2) NO

Q 2. What is the length AB in the above figure?

(1) 4 cm
(2) 8 cm
(3) 2 cm
(4) 1 cm

Q 3. What is the length AP in the above figure?

(1) 4 cm
(2) 5 cm
(3) 2 cm
(4) 1 cm

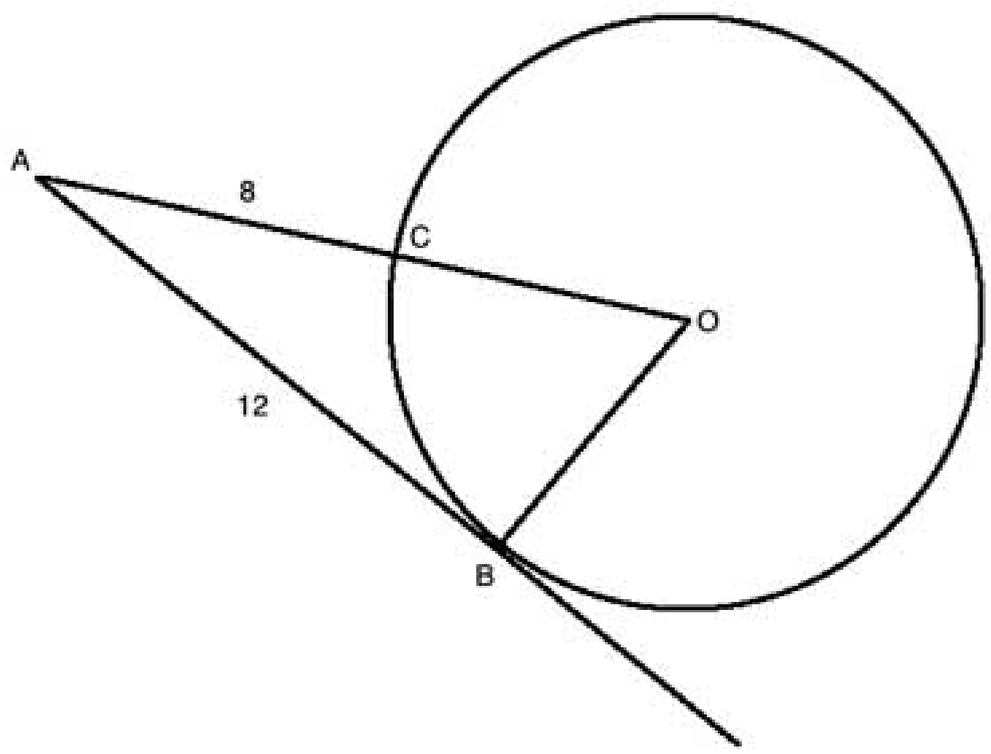
Q 4. What is the length of the chord of the larger circle?

(1) 4 cm
(2) 8 cm
(3) 2 cm
(4) 1 cm

Q 5. What is the length OP in the above figure?

(1) 4 cm
(2) 3 cm
(3) 2 cm
(4) 1 cm

Passage - 3 **5 Marks**



Rahul draws a tangent from a point A at distance 13 cm from the centre of the circle is 12 cm. Observe the above figure and answer the below questions:

Q 1. What is the radius of the circle?

(1) 4 cm
(2) 5 cm
(3) 6 cm
(4) NONE OF THESE

Q 2. Which is the tangent shown in the figure?

(1) AB
(2) OB
(3) OA

(4) NONE OF THESE

Q 3. State true or false: AB is perpendicuar to OB.

(1) TRUE
(2) FALSE

Q 4. What is the length of OA in the figure?

(1) 11 cm
(2) 13 cm
(3) 15 cm
(4) 17 cm

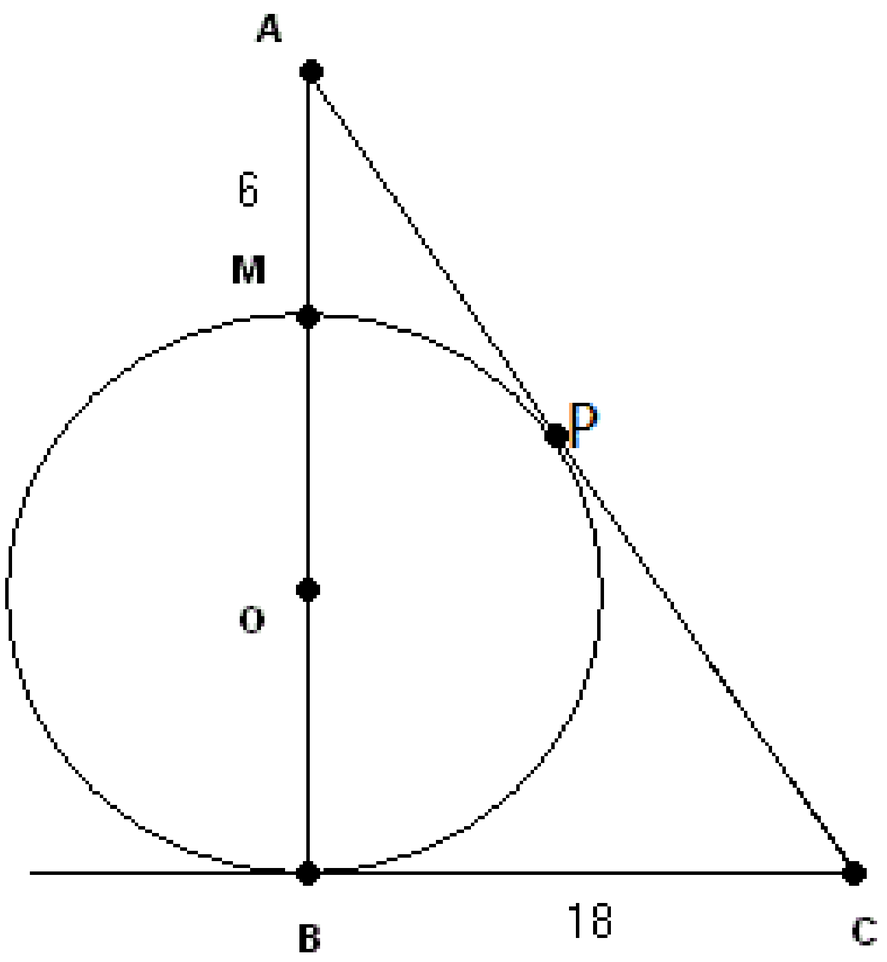
Q 5. What is the value of $\angle OBA$?

(1) 45°
(2) 90°
(3) 100°
(4) 120°

Passage - 4 **5 Marks**

Worksheet 10.4

Marks - 25



Riya draws a triangle ABC which is tangent to the circle of centre O at two points. The lengths of AM and BC are equal to 6 cm and 18 cm respectively.

Q 1. State True or False: Two tangents can be drawn to a circle from an external point.

(1) TRUE
(2) FALSE

Q 2. The lengths of two tangents drawn from an external point to a circle are _____.

(1) Equal
(2) Different

Q 3. If BC = 18 cm, then PC = ?

(1) 6 cm
(2) 18 cm
(3) 20 cm

(4) NONE OF THESE

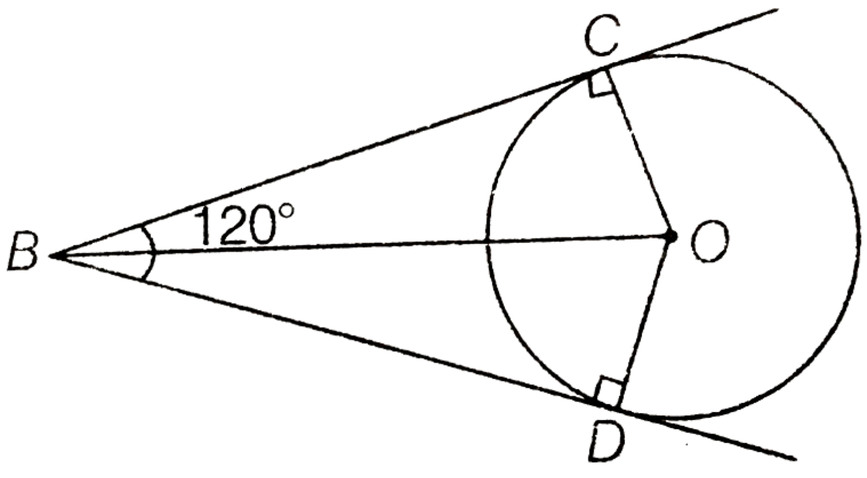
Q 4. Which are the two tangents in the figure?

(1) AM and AP
(2) BO and OM
(3) BC and CP
(4) NONE OF THESE

Q 5. Find the radius of the circle?

(1) 6 cm
(2) 9 cm
(3) 18 cm
(4) 21 cm

Passage - 5 **5 Marks**



Carl draws a figure like icecream with two tangents BC and BD from an external point B to a circle with centre O.

Q 1. State true or false: OC is perpendicular to BC.

(1) TRUE
(2) FALSE

Worksheet 10.4

Marks - 25

Q 2. Which are the two tangents in the figure?

(1) OC and OD
(2) BC and BD
(3) OB and CD
(4) NONE OF THESE

Q 3. If $\angle DBC = 120^\circ$, then $\angle OBC = \angle OBD$ = ?

(1) 40°
(2) 50°
(3) 60°
(4) 70°

Q 4. If $\angle DOC = 130^\circ$, then what is the value of $\angle DBC$?

(1) 40°
(2) 50°
(3) 60°
(4) 70°

Worksheet 10.4

Marks - 25

Q 5. State true or false: OB = BC + BD.

(1) TRUE
(2) FALSE