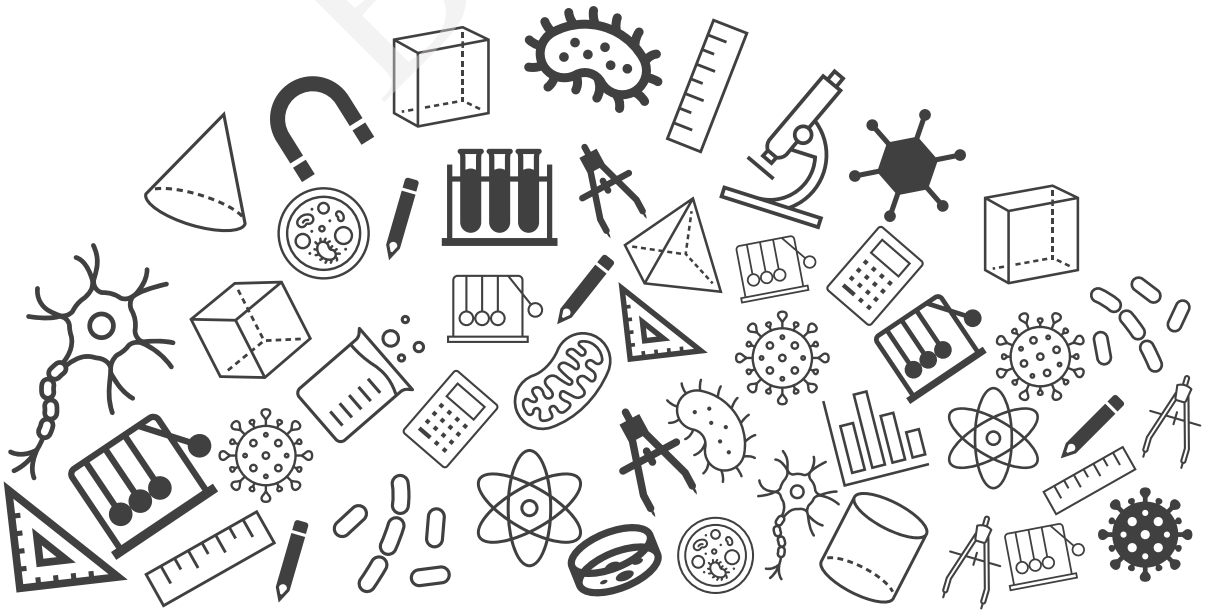
Grade 10
Mathematics Chapter Notes

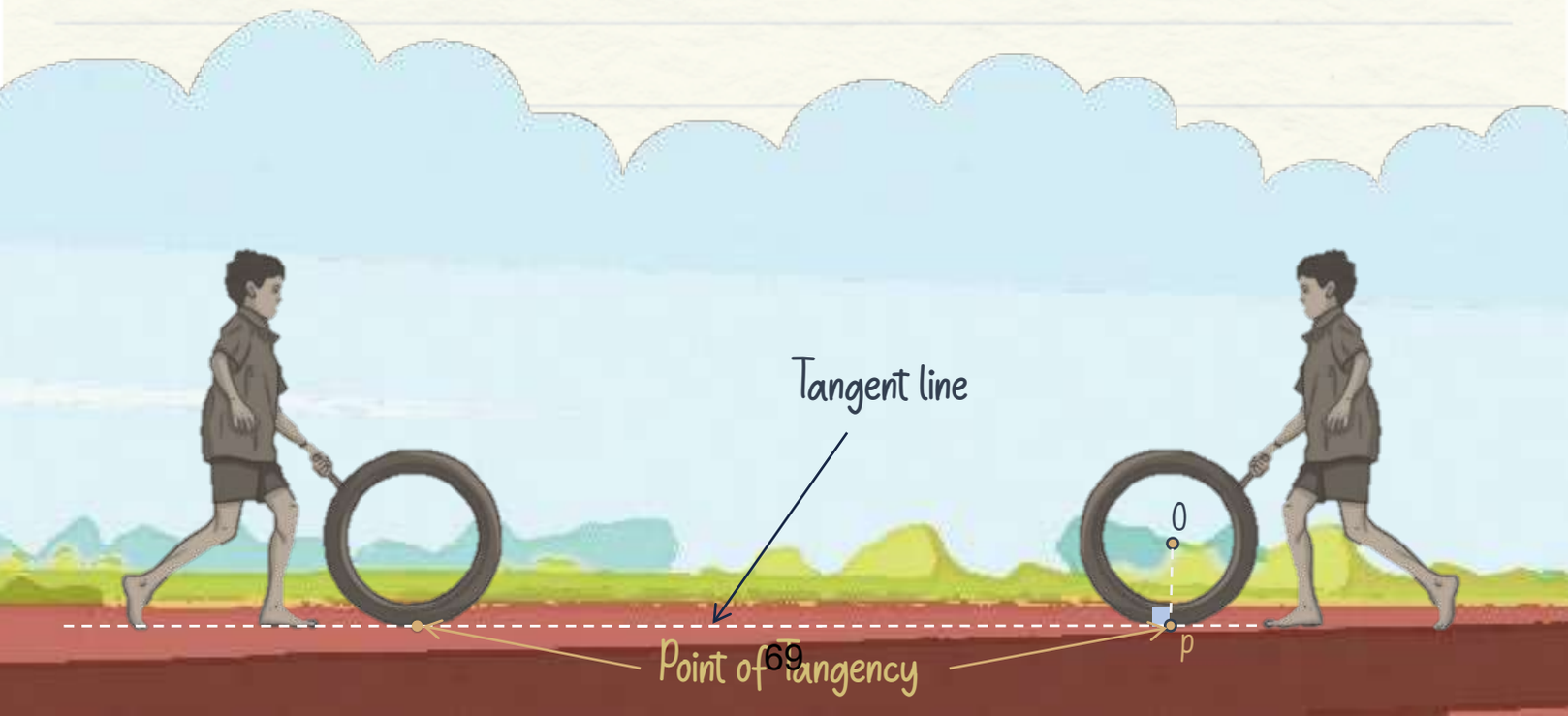


BYJU'S
CHAPTER NOTES

Circles

Topics

1. Lines related to a Circle
2. Tangents and Secants
3. Number of Tangents
4. Theorems related to a Tangent
5. Important Corollaries

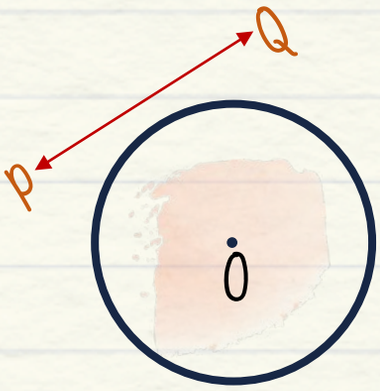


Circles

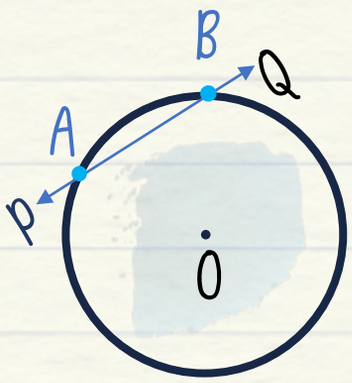
Lines related to Circle

Line outside the circle

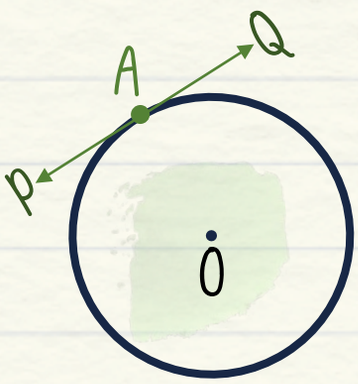
Tangents and Secants



- Does not touch the circle
- No point of intersection



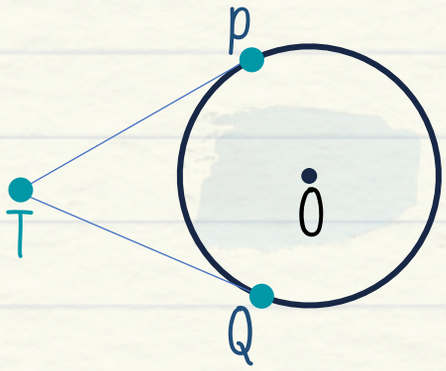
- 2 points of intersection
- PQ is the secant



- Touches only at 1 point
- PQ is called tangent

No. of Tangents

For any point on the circumference of a circle,
No. of tangents = 1



No. of tangents from an external point to circle = 2

B

Theorems related to Tangent

Theorem 1

Tangents and Radius

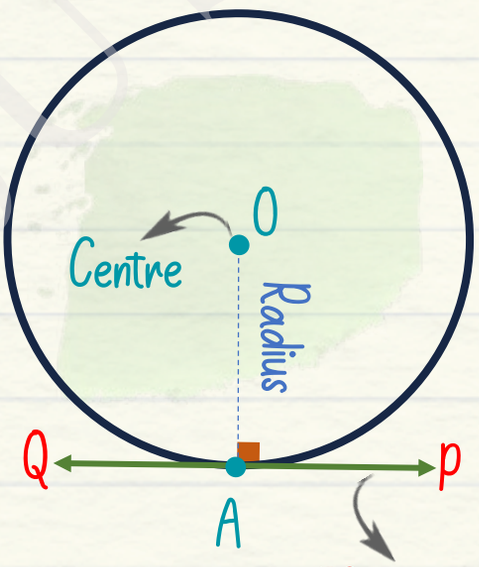
Theorem 2

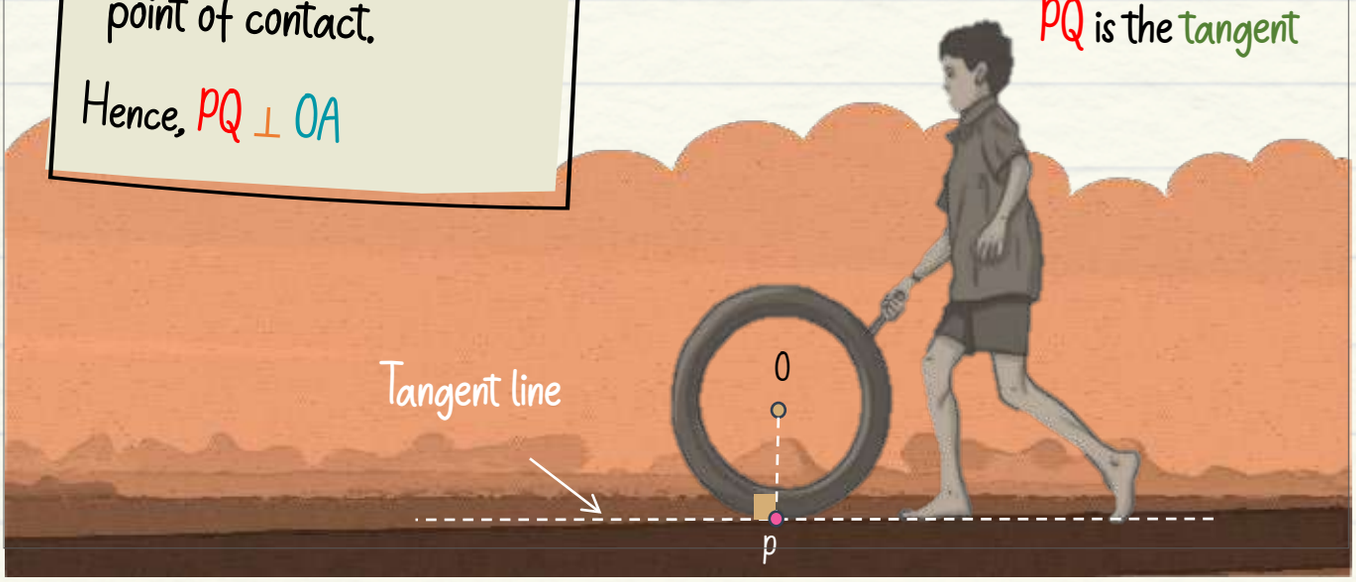
Tangents from external point

1: Tangents and Radius

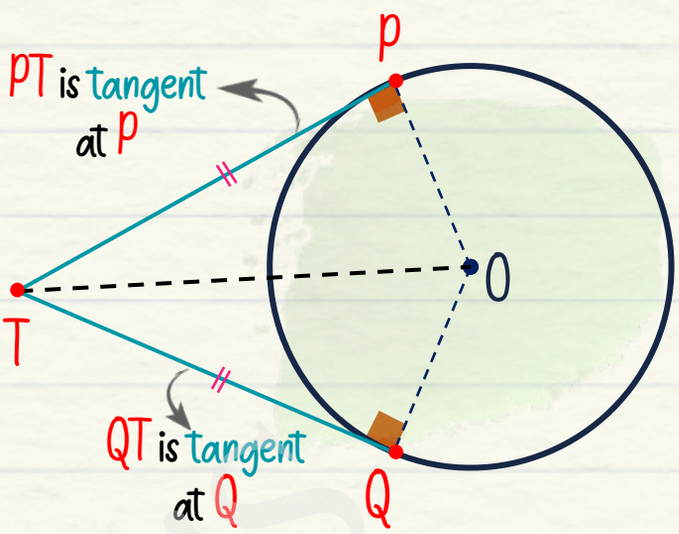
Theorem :- The tangent at any point of the circle is perpendicular to the radius through the point of contact.

Hence, $PQ \perp OA$





2: Tangents from external point

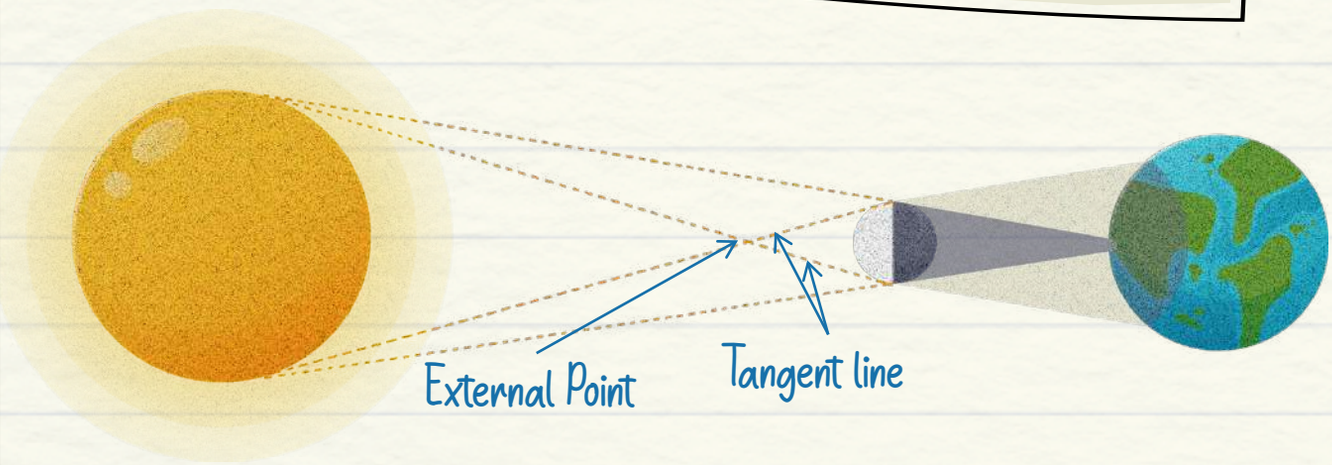


Theorem :- The lengths of tangents drawn from an external point to a circle are equal.

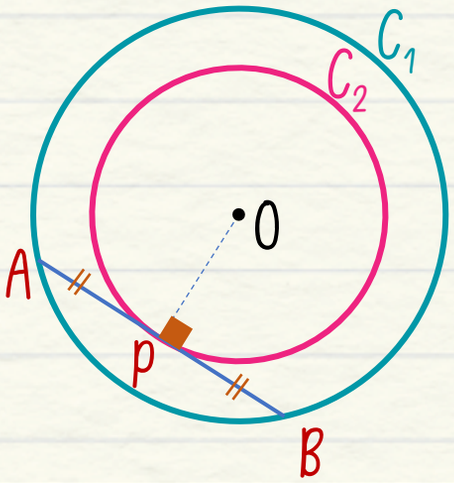
Hence, PT = QT

Can be proved in two ways :-

- Congruence of △TOP & △TOQ
- Pythagoras" theorem

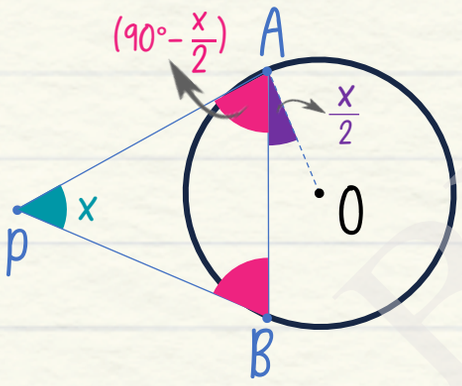


Important Corollaries



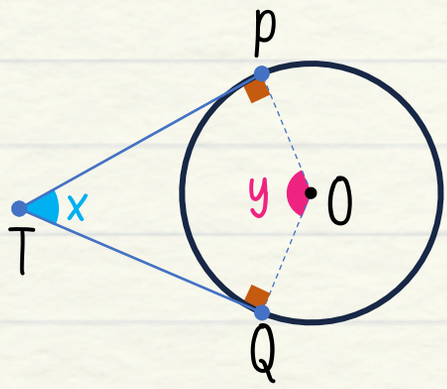
For C_1 and C_2 being concentric circles,

- OP is perpendicular bisector of AB
- AP = PB



PA and PB are 2 tangents drawn from an external point P to a circle with centre at O,

- $\angle APB = 2\angle BAO$
- $\angle PAB = \angle PBA = (90° - \frac{x}{2})$



- x and y are supplementary
  i.e. $x + y = 180°$

Mind Map