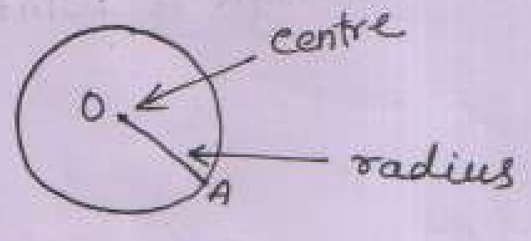
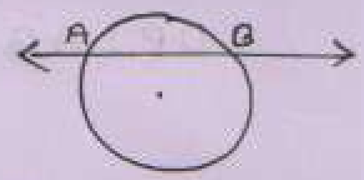
C.B.S.E

Circle

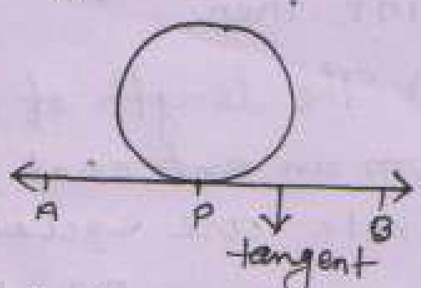
* **Circle:-** A circle is a collection of all points in a plane which are at a constant distance from a fixed point. The constant distance is called the radius and the fixed point is called the centre of the circle.



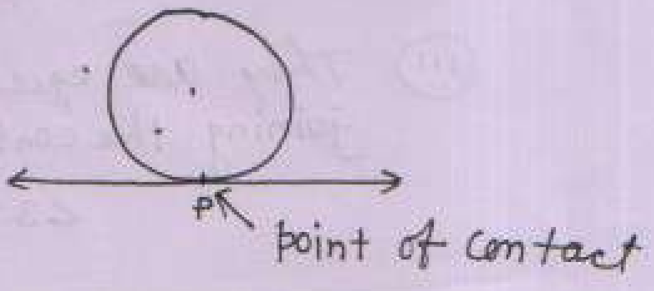
* **Secant:-** A line which intersects a circle in two distinct points is called a secant to the circle.



* **tangent:-** A line meeting a circle only in one point is called a tangent to the circle at that point.



* **Point of Contact:-** The point at which the tangent line intersects the circle is called the point of contact.

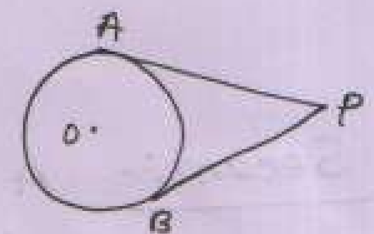


Remaimber points :-

1. There is no tangent passing through a point lying inside the circle.

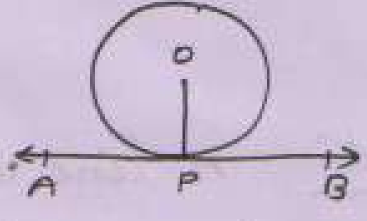
2. There is one and only one tangent passing through a point lying on a circle.

3. There are exactly two tangents through a point outside a circle.



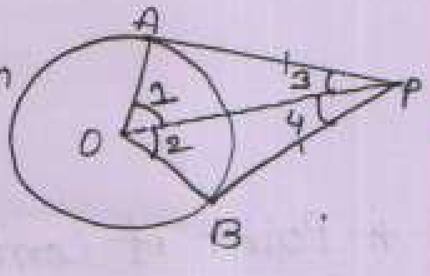
4. The tangent at any point of a circle is perpendicular to the radius through the point of contact.

$OP \perp AB$



5. If two tangents are drawn from an external point then,

(i) The length of tangents drawn from an external point to a circle are equal.



$PA = PB$

(ii) They subtend equal angles at the centre.

$\angle 1 = \angle 2$

(iii) They are equally inclined to the line segment joining the centre to that point.

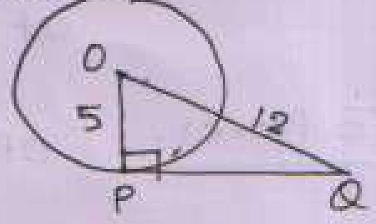
$\angle 3 = \angle 4$

Ex-10.1

1. Infinitely many

2. (i) one
(ii) Secant
(iii) Two
(iv) Point of Contact.

3. Given that: A circle with centre O. in which,



$OQ = 12 \text{ c.m}$
$OP = 5 \text{ c.m}$
$PQ = ?$

we know that,
the ~~tanget~~ radius of circle is the perpendicular to the tangent of circle.

$\therefore OP \perp PQ$

In right ΔOPQ, $\therefore \angle P = 90$

$PQ = \sqrt{OQ^2 - OP^2}$ [Pythagorous theorem]

$= \sqrt{12^2 - 5^2}$

$= \sqrt{144 - 25}$

$= \sqrt{119}$ $\therefore$ (D)

4.