

CHAPTER 11

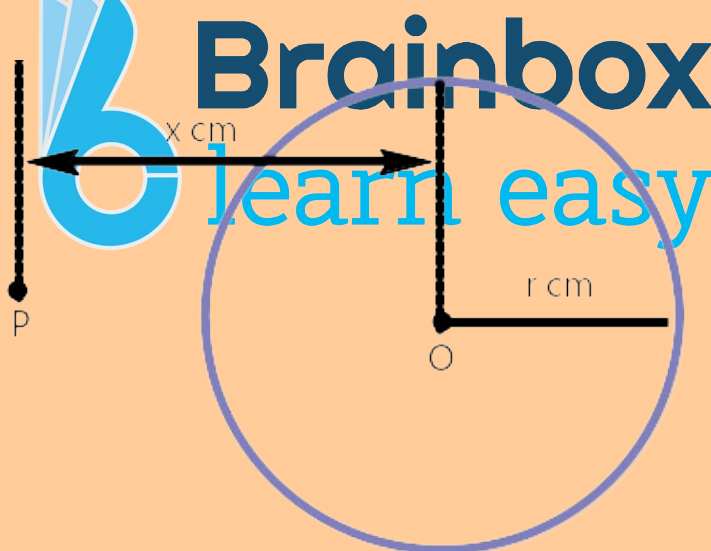
Constructions

III. Construction of tangents to a circle from a point outside the circle, when the centre of the circle is known:

Steps of construction:

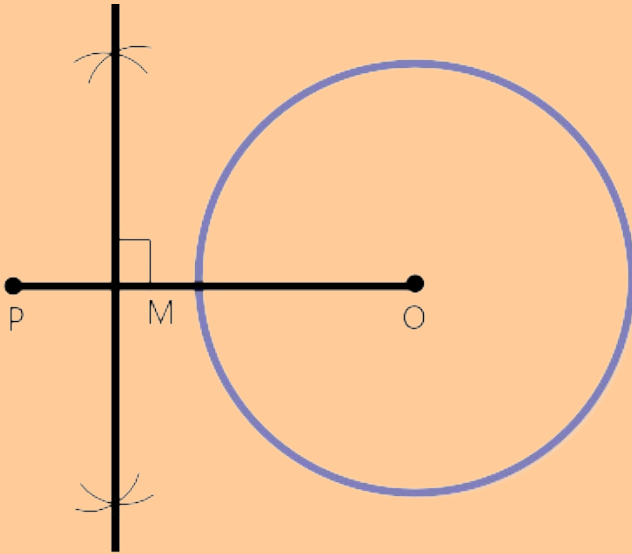
Step I:

Draw a circle with centre 'O' and radius 'r' cm. Mark a point 'P' outside the circle such that $OP = x$ cm.



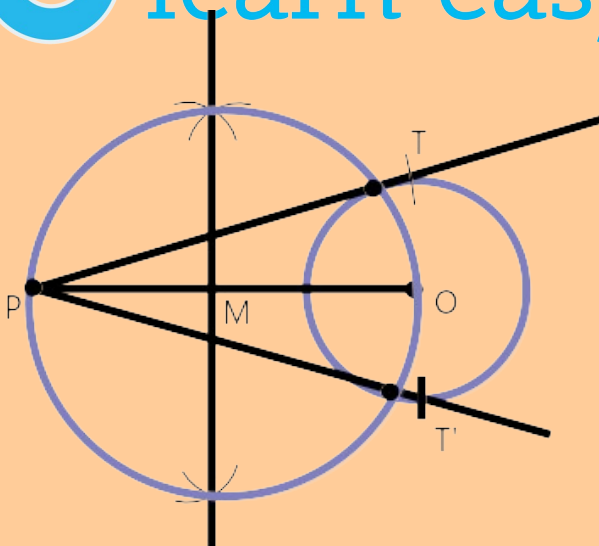
Step II:

Join OP and draw its perpendicular bisector, which cut OP at 'M'.

**Step III:**

Draw a circle with 'M' as centre and radius equal to MP to intersect the given circle at the point T and T'.

Join PT and PT'.



PT and PT' are the required tangents.

Example:

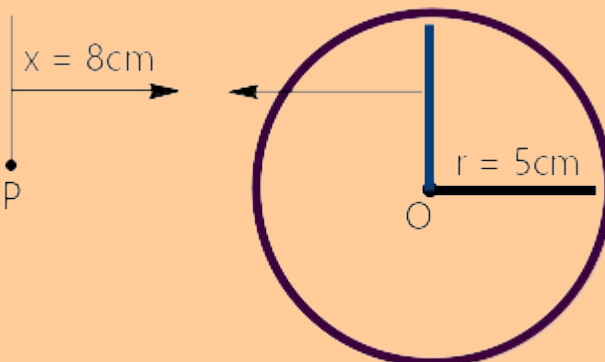
Draw a circle of radius 5 cm. From a point 'P' 8 cm away from its centre, construct a pair of tangents to the circle.

Sol.**Steps of construction:****Step I:**

Draw a circle with centre 'O' and radius $r = 5$ cm.

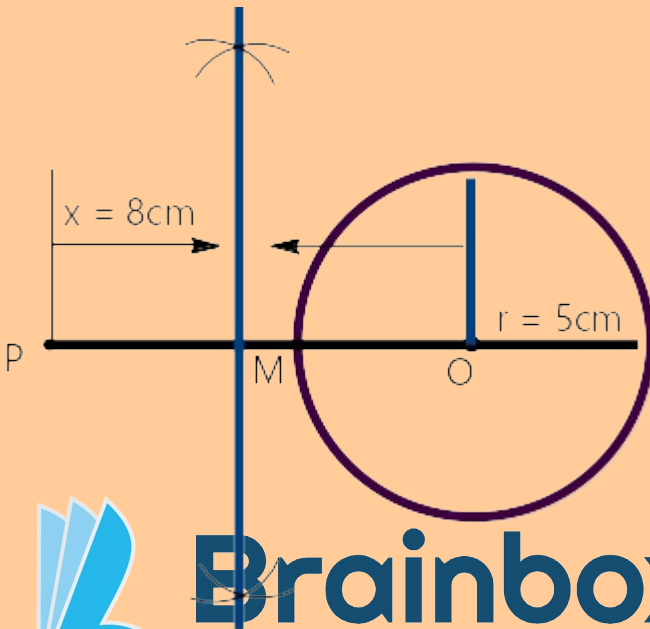
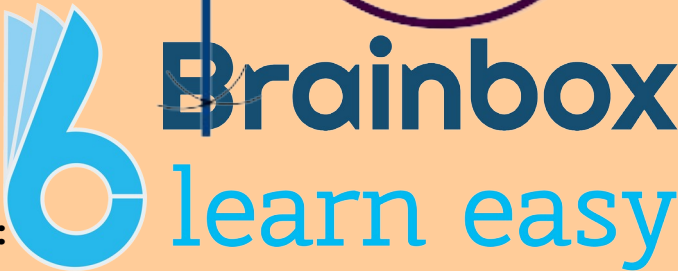
**Step II:**

Mark a point 'P' outside the circle such that $OP = 8$ cm.



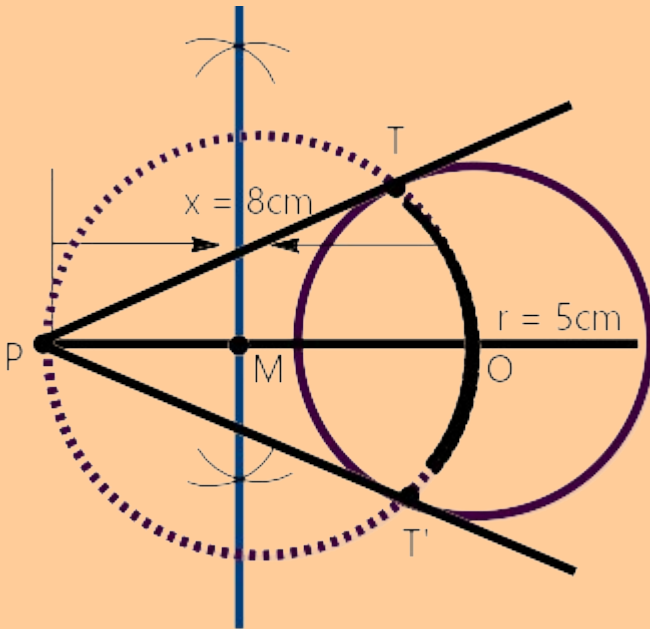
Step III:

Join OP and draw its perpendicular bisector, which cuts OP at 'M'.

**Step IV:**

Draw a circle with 'M' as centre and radius equal to 'MP' to intersect the given circle at the point T and T'.

Join PT and PT'.



Hence, PT and PT' are the required tangents.

