

CHAPTER 09

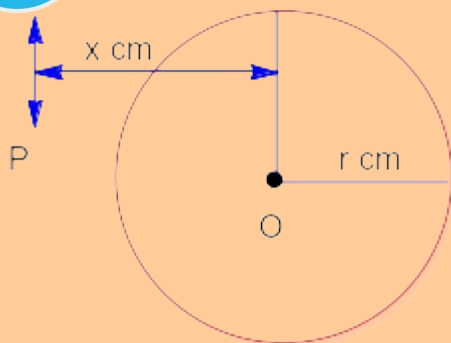
Tangents and Secants to a Circle

Construction of tangents to a circle from an external point when the centre of the circle is known:

Steps of construction:

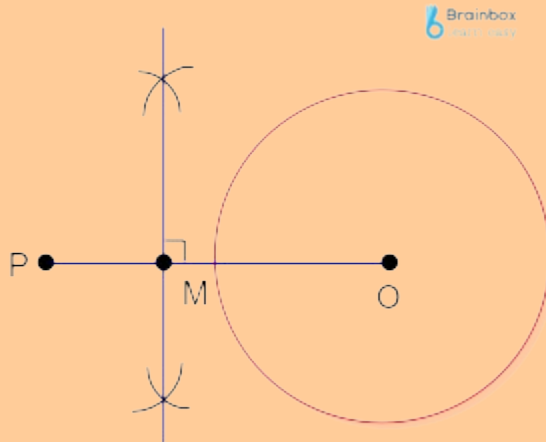
Step 1:

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



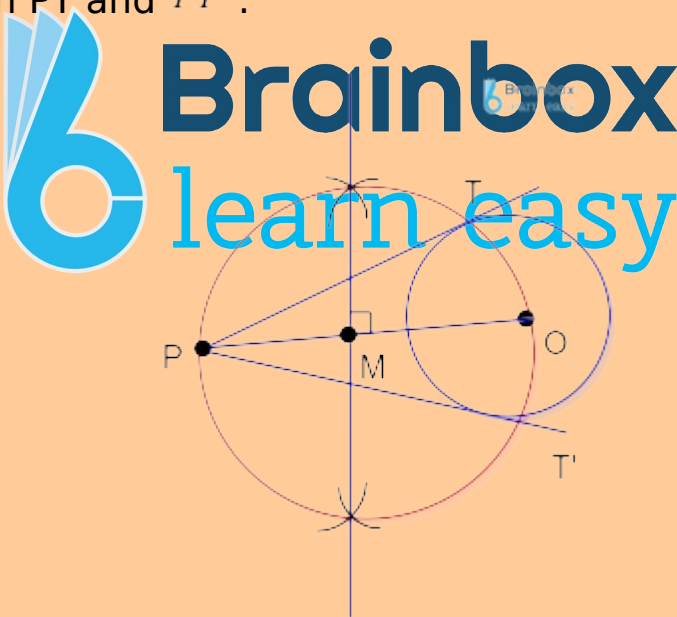
Step 2:

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



Step 3:

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' .



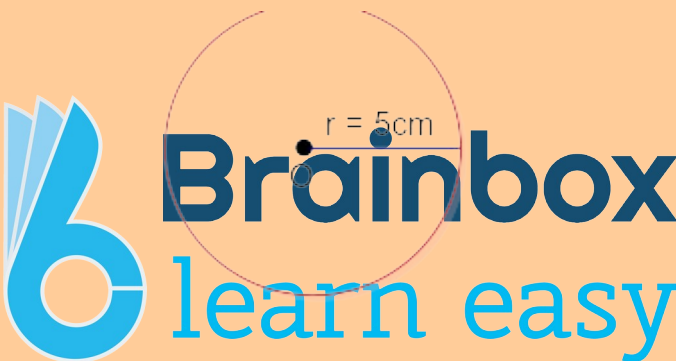
PT and PT' are the required tangents.

Example:

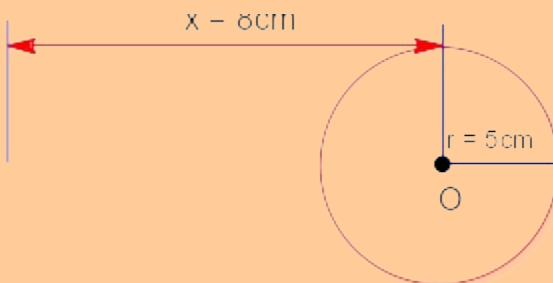
Draw a circle of radius 5cm. From a point 'P' 8cm away from its centre, construct a pair of tangents to the circle.

Sol.**Steps of construction:****Step 1:**

Draw a circle with centre 'O' and radius $r = 5\text{cm}$.

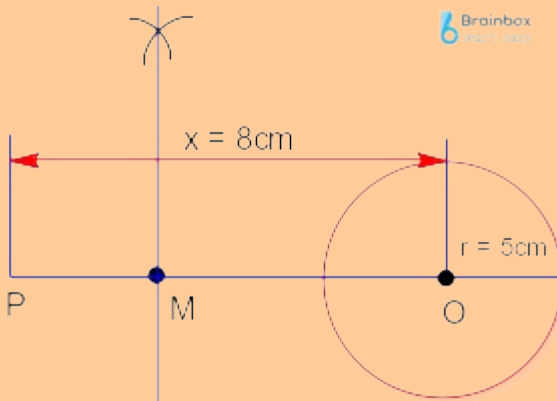
**Step 2:**

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



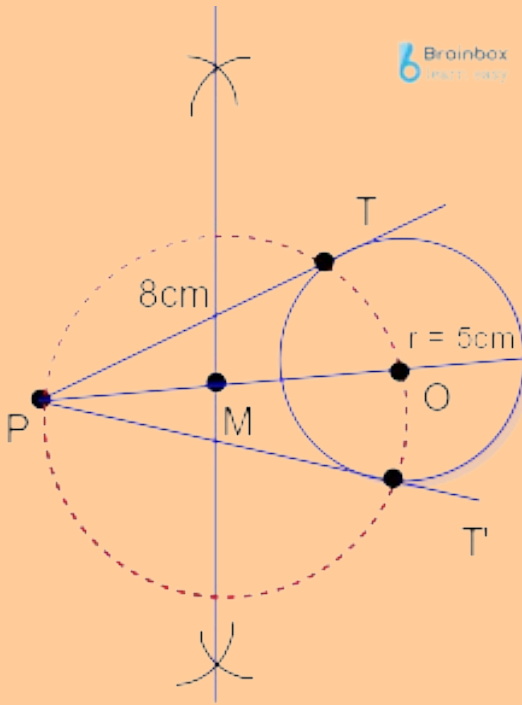
Step 3:

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



Step 4:  **learn easy**

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.

