



Constructions Ex 11.3 Q1

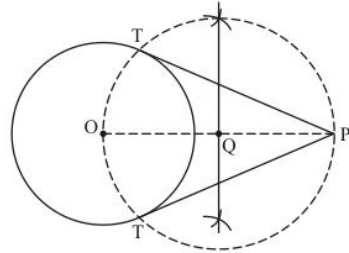
Answer :

Given that

Construct a circle of radius 6 cm , and let a point $P = 10\text{ cm}$ from its centre, construct the pair of tangents to the circle.

Find the length of tangents.

We follow the following steps to construct the given



Step of construction

Step: I- First of all we draw a circle of radius $AB = 6\text{ cm}$.

Step: II- Make a point P at a distance of $OP = 10\text{ cm}$, and join OP .

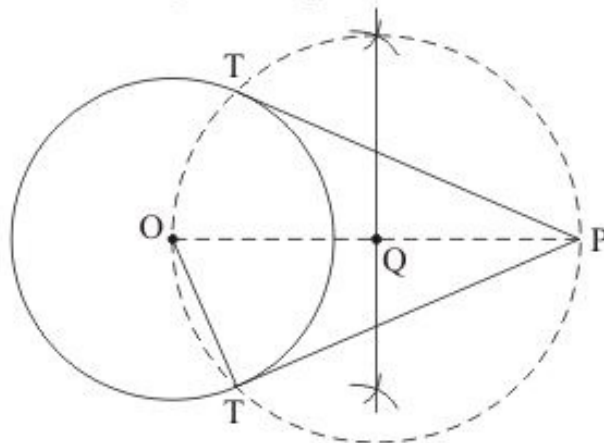
Step: III -Draw a right bisector of OP , intersecting OP at Q .

Step: IV- Taking Q as centre and radius $OQ = PQ$, draw a circle to intersect the given circle at T and T' .

Step: V- Joins PT and PT' to obtain the required tangents.

Thus, PT and PT' are the required tangents.

Find the length of tangents.



As we know that $OT \perp PT$ and $\triangle OPT$ is right triangle.

Therefore,

$$OT = 6\text{ cm and } PO = 10\text{ cm}$$

In $\triangle OPT$,

$$PT^2 = OP^2 - OT^2$$

$$= 10^2 - 6^2$$

$$= 100 - 36$$

$$= 64$$

$$PT = \sqrt{64}$$

$$= 8$$

Thus, the length of tangents = 8 cm

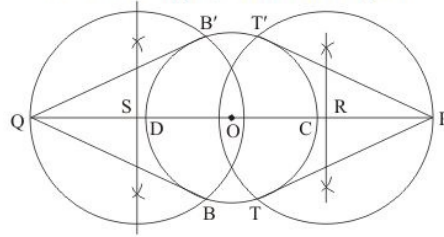
Constructions Ex 11.3 Q2

Answer :

Given that

Construct a circle of radius **3 cm**, and let a point **P** and **Q** extended diameter each at distance of 7 cm from its centre. Construct the pair of tangents to the circle from these two points **P** and **Q**.

We follow the following steps to construct the given



Step of construction

Step: I- First of all we draw a circle of radius = **3 cm**.

Step: II- Make a line **CD = diameter = 6 cm**.

Step: III- Extend the line **CD** in such a way that point **CP = DQ = 7 cm**

Step: IV- **CP** at a distance of **OP = 7 + 3 = 10 cm**, and join **OP** draw a right bisector of **OP**, intersecting **OP** at **R**.

Step V- Similarly, **DQ** at a distance of **OQ = 7 + 3 = 10 cm**, and join **OQ** draw a right bisector of **OQ**, intersecting **OQ** at **S**.

Step VI: Taking **R** and **S** as centre and radius **OS = OR**, draw a circle to intersect the given circle at **T** and **T'**

B and **B'** respectively.

Step: VII- Joins **PT** and **PT'** as well as **QB** and **QB'** to obtain the require tangents.

Thus, **PT** and **PT'**, **QB** and **QB'** are the required tangents.

***** END *****