Circles

10^{th} Maths - Chapter 10

This is Problem-3 from Exercise 1

1. A tangent **PQ** at a point **P** of a circle of radius 5 cm meets a line through the centre **O** at a point **Q** so that **OQ** = 12 cm. Length **PQ** is

   Solution:
   The input parameters for this problem are available in Table (1)

Symbol	**Value**	**Description**
r	5	Radius of the Circle
O	$\begin{pmatrix} 0 \\ 0 \end{pmatrix}$	Centre of the circle
OP	5	Length of **OP**
OQ	12	Lenght of **OQ**
PQ	?	Length of **PQ**

Table 1

Since **PQ** is a tanget then

$$\mathbf{OP} \perp \mathbf{PQ} \tag{1}$$

Then $\triangle \mathbf{OPQ}$ is a right angle triangle

$$\mathbf{OQ}^2 = \mathbf{OP}^2 + \mathbf{PQ}^2 \tag{2}$$

$$\mathbf{PQ} = \sqrt{\mathbf{OQ}^2 - \mathbf{OP}^2} \tag{3}$$

$$\mathbf{PQ} = \sqrt{114 - 25} \tag{4}$$

$$\mathbf{PQ} = \sqrt{119} \tag{5}$$

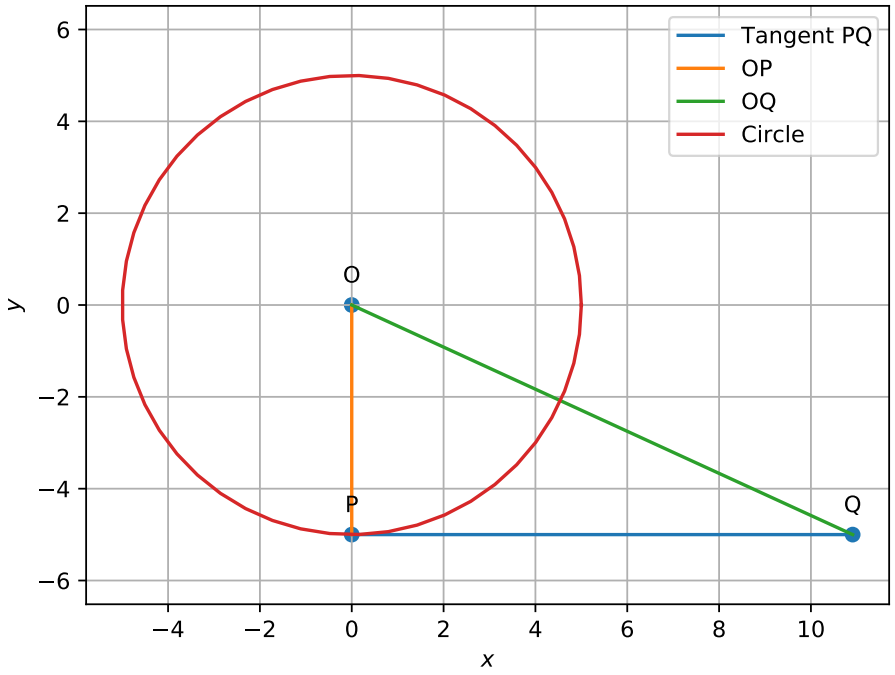

Figure 1