

Assignment 1

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Question : In the figure given below 'O' is the center of the circle if $QR = OP$ and $\angle ORP = 20^\circ$. Find the value of x giving reasons.

SOLUTION:

Radius r ,

$$OP = OQ = r$$

Given, $QR = OP$

$$OP = OQ = QR = r$$

In $\triangle OQR$, $OQ = QR$

$$\angle QOR = \angle ORP = 20^\circ$$

And $\angle OQP = \angle QOR + \angle ORQ$ because exterior angle of a triangle is equal to the sum of the two opposite interior angles

$$\angle OQP = 20^\circ + 20^\circ$$

$$\angle OQP = 40^\circ$$

Now in $\triangle OPQ$

sum of angles in a triangle is 180

$$\angle POQ = 180^\circ - (\angle OPQ + \angle OQP)$$

$$\angle POQ = 180^\circ - 40^\circ - 40^\circ$$

$$\angle POQ = 100^\circ$$

Now $\angle x + \angle POQ + \angle QOR = 180^\circ$ (sum of angles in straight line is 180)

$$\angle x + 100^\circ + 20^\circ = 180^\circ$$

$$\angle x = 60^\circ$$

hence value of x is 60 degree

- (b) In the figure given below 'O' is the centre of the circle. If $QR = OP$ and $\angle ORP = 20^\circ$. Find the value of 'x' giving reasons. [3]

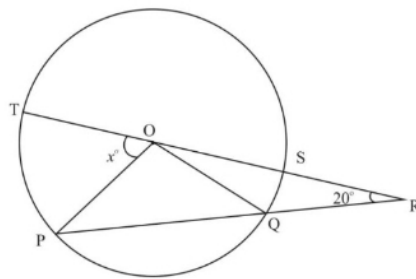


Figure 1: figure