

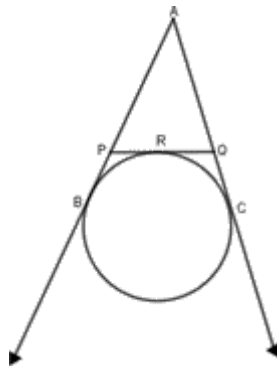
## FlexiPrep

### CBSE Class 10-Mathematics: Questions and Answers Chapter – 10 Circles Part 9 (For CBSE, ICSE, IAS, NET, NRA 2022)

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#### Question 19:

If AB, AC and PQ are tangents in the given figure and  $AB = 25$  cm , find the perimeter of  $\Delta APQ$ .



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#### Answer:

$$\begin{aligned}
 \text{Perimeter of } \Delta APQ &= AP + AQ + PQ \\
 &= AP + AQ + PX + XQ \\
 &= (AP + PB) + (AQ + QC) \\
 &= AB + AC \\
 &= 2AB = 2 \times 25 = 50 \text{ cm}
 \end{aligned}$$

#### Question 20:

Find the locus of the center of circles which touch a given line at a given point.

#### Answer:

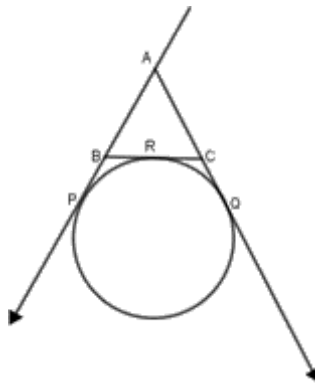
Let APB be the given line and let a circle with center O touch APB at P. Then  $\angle OPB = 90^\circ$ , let there be another circle with center O' which touches the line APB at P.

Thus,  $\angle O'PB = 90^\circ$

$$\therefore \angle OPB = \angle O'PB = 90^\circ$$

**Question 21:**

In the given figure, find the perimeter of  $\triangle ABC$ , if  $AP = 10$  cm .



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**Answer:**

$\because$  BC touches the circle at R

$\because$  Tangents drawn from external point to the circle are equal.

$$\therefore AP = AQ, BR = BP$$

And  $CR = CQ$

$$\therefore \text{Perimeter of } \triangle ABC = AB + BC + AC$$

$$= AB + (BR + RC) + AC$$

$$= AB + BP + CQ + AC$$

$$= AP + AQ = 2AP = 2 \times 10 = 20 \text{ cm}$$

**Question 22:**

If PA and PB are tangents drawn from external point P such that  $PA = 10$  cm and

**Answer:**

$$\because \angle APB = 60^\circ$$

$$\angle AOB = 120^\circ \text{ [O is centre of circle]}$$

$$\angle OAB = \angle OBA = 30^\circ$$

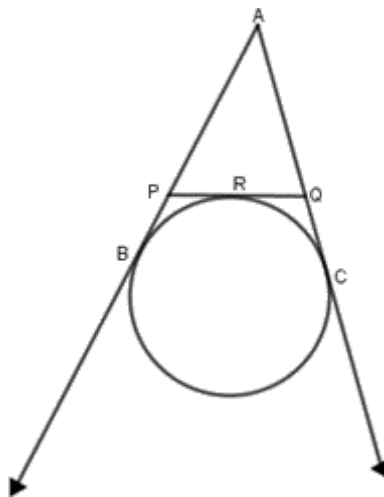
$$\therefore \angle PAB = 60^\circ, \angle PBA = 60^\circ$$

$\therefore \Delta PAB$  is equilateral triangle

$$\therefore AB = PA = 10 \text{ cm}$$

**Question 23:**

If AB, AC and PQ are tangents in the given figure and  $AB = 25 \text{ cm}$ , find the perimeter of  $\Delta APQ$ .



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**Answer:**

$$\text{Perimeter of } \Delta APQ = AP + AQ + PQ$$

$$= AP + AQ + PX + XQ$$

$$= (AP + PB) + (AQ + QC)$$

$$= AB + AC$$

$$= 2AB = 2 \times 25 = 50 \text{ cm}$$

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