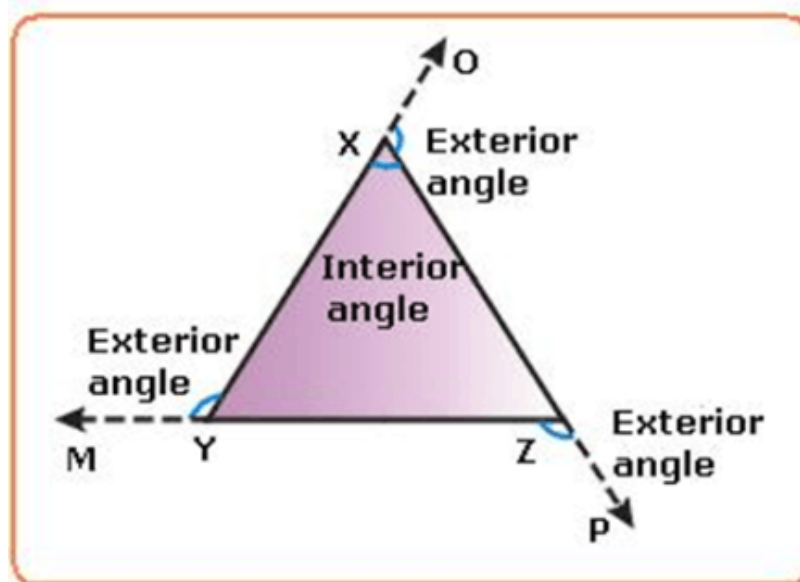


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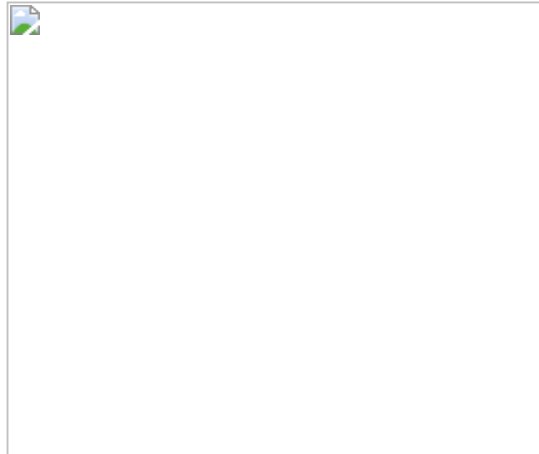
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## NCERT Class 9 Solutions: Line and Angles (Chapter 6) Exercise 6.3 – Part 1

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Q-1 In the figure, sides QP and RQ of  $\triangle PQR$  are produced to points S and T respectively. If  $\angle SPR = 135^\circ$  and  $\angle PQT = 110^\circ$ , find  $\angle PRQ$ .



Solution:

Given,  $\triangle PQR$  sides QP and RQ

$$\angle SPR = 135^\circ \text{ and } \angle PQT = 110^\circ$$

Now,

$$\angle SPR + \angle QPR = 180^\circ \text{ (SQ is a straight line)}$$

$$\Rightarrow 135^\circ + \angle QPR = 180^\circ \Rightarrow \angle QPR = 45^\circ$$

Also,

$$\angle PQT + \angle PQR = 180^\circ \text{ (TR is a straight line)}$$

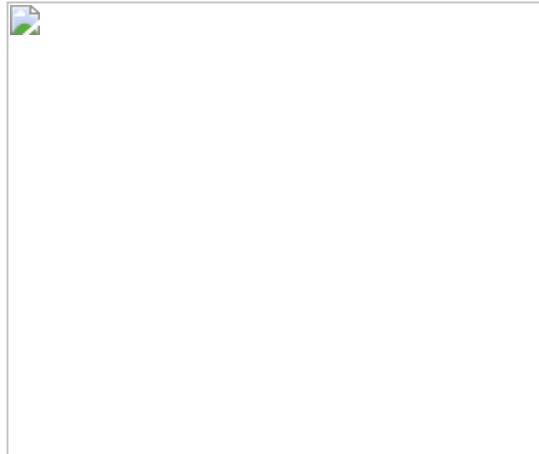
$$\Rightarrow 110^\circ + \angle PQR = 180^\circ \Rightarrow \angle PQR = 70^\circ$$

Now,

$$\angle PQR + \angle QPR + \angle PRQ = 180^\circ \text{ (Sum of the interior angles of the triangle)}$$

$$\Rightarrow 70^\circ + 45^\circ + \angle PRQ = 180^\circ \Rightarrow 115^\circ + \angle PRQ = 180^\circ \Rightarrow \angle PRQ = 65^\circ$$

Q-2 In the figure,  $\angle XYZ = 54^\circ$ . If YO and ZO are the bisectors of  $\angle XYZ$  and  $\angle XZY$  respectively of  $\triangle XYZ$ , find  $\angle OZY$  and  $\angle YOZ$ .



Solution:

Given,  $\angle X = 62^\circ$ ,  $\angle XYZ = 54^\circ$

YO and ZO are the bisectors of  $\angle XYZ$  and  $\angle XZY$  respectively.

Now,

$$\angle YXZ + \angle XYZ + \angle XZY = 180^\circ \text{ (Sum of the interior angles of the triangle)}$$

$$\Rightarrow 62^\circ + 54^\circ + \angle XZY = 180^\circ \Rightarrow 116^\circ + \angle XZY = 180^\circ \Rightarrow \angle XZY = 64^\circ$$

Now,

$$\angle OZY = \frac{1}{2} \angle XZY \text{ (ZO is the bisector)} \Rightarrow \angle OZY = \frac{1}{2}(64^\circ) = 32^\circ$$

Also,

$$\angle OYZ = \frac{1}{2} \angle XYZ \text{ (YO is the bisector)}$$

$$\Rightarrow \angle OYZ = \frac{1}{2}(54^\circ) = 27^\circ$$

Now,

$$\angle OZY + \angle OYZ + \angle O = 180^\circ \text{ (Sum of the interior angles of the triangle)}$$

$$\Rightarrow 32^\circ + 27^\circ + \angle O = 180^\circ \Rightarrow 59^\circ + \angle O = 180^\circ \Rightarrow \angle O = 121^\circ$$