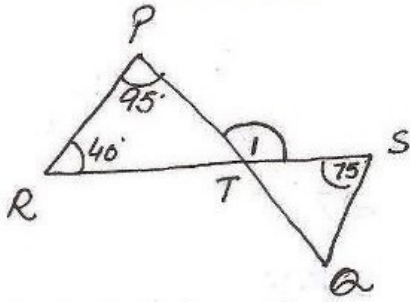


Class IX

Ch. Lines and Angles

Ex 6.3

④



to find $\angle STQ$

Sol $\angle I = \angle P + \angle R$ (exterior angle prop of Δ)

$$= 95 + 40$$

$$= 135^\circ$$

$$\angle I = \angle S + \angle a \quad (\text{do})$$

$$135 = 75 + \angle a$$

$$\Rightarrow \angle a = 135 - 75$$

$$= 60^\circ$$

In ΔSPQ

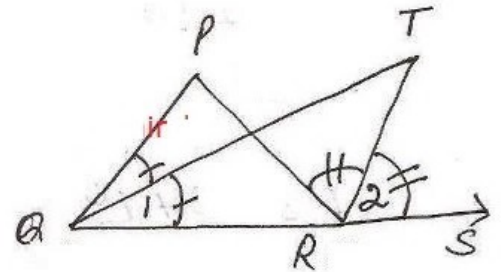
$$\angle P + x + y = 180 \quad (\text{angle sum prop of } \Delta)$$

$$90 + 37 + y = 180$$

$$\Rightarrow y = 180 - 127$$

$$= 53^\circ$$

⑤



to prove $\angle QTR = \frac{1}{2} \angle QPR$

proof $\angle PRS = \angle P + \angle QAR$ ①
[exterior \angle prop. of Δ]

$$\angle a = \angle T + \angle I \quad (\text{do})$$

(x2)

$$2\angle a = 2\angle T + 2\angle I$$

$$\angle PRS = 2\angle T + \angle QAR \quad \text{--- ②}$$

$\because RT$ bisects $\angle PRS$
 $\angle RT$ bisects $\angle QAR$

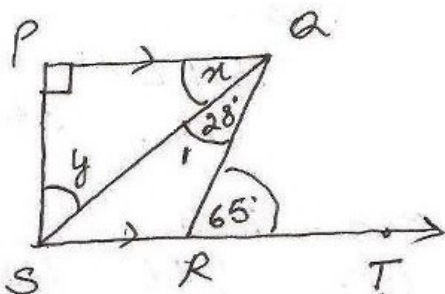
From ① and ②

$$\angle P + \cancel{\angle QAR} = 2\angle T + \cancel{\angle QAR}$$

$$\Rightarrow \angle P = 2\angle T$$

$$\Rightarrow \angle QTR = \frac{1}{2} \angle QPR$$

⑥



to find x, y

Sol $PQ \parallel ST$

$\angle PQR = \angle QRT$ (alternate interior angles)

$$x + 28 = 65$$

$$\Rightarrow x = 65 - 28$$

$$= 37^\circ$$