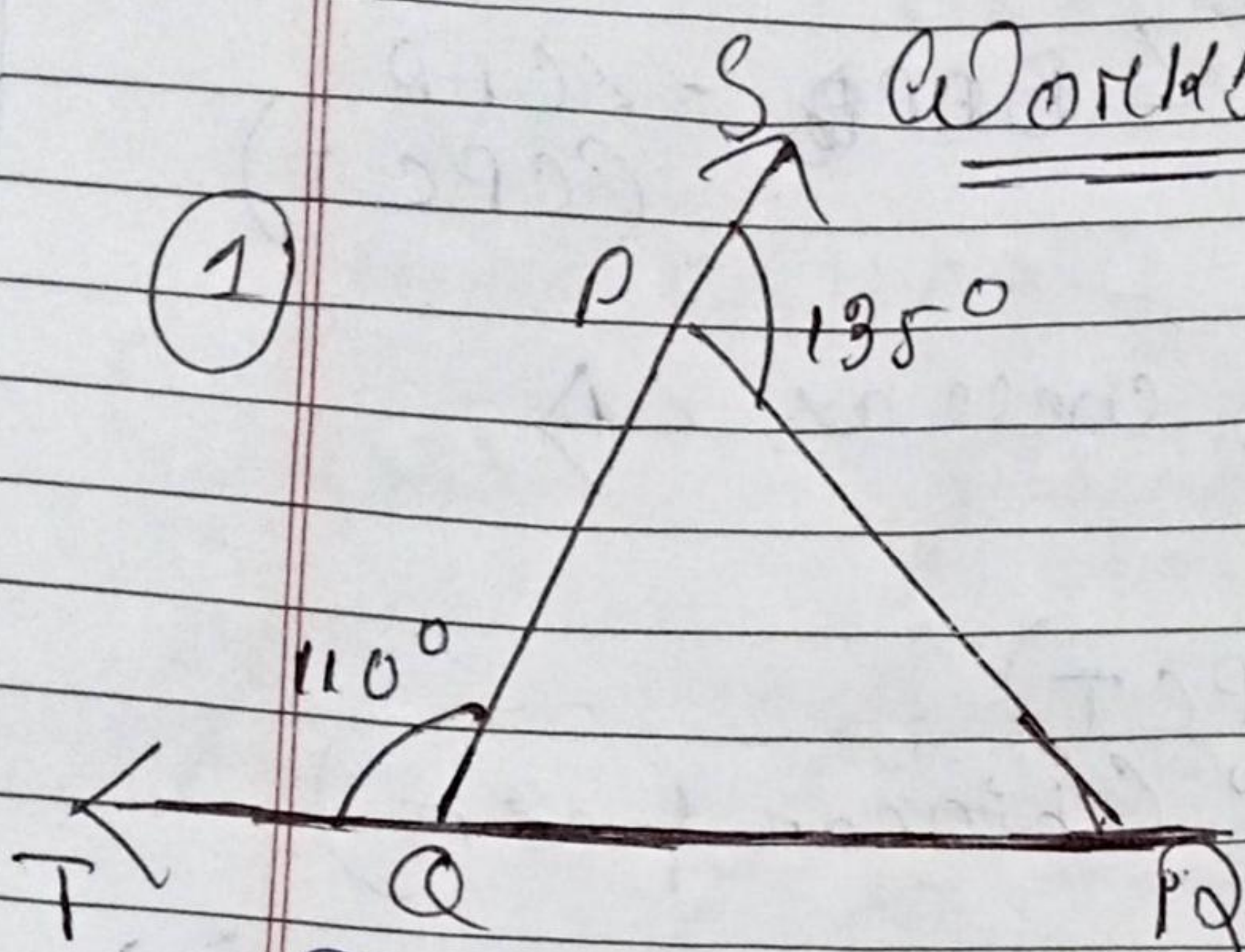


Worksheet - 3



To find value of  $\angle PQR$  ?

Given  $\angle SPQ = 135^\circ$   
 $\angle PQT = 110^\circ$

To find value of  $\angle PQR$

①  $\angle SPQ + \angle QPR = 180^\circ$  (L.P)  $\Rightarrow \angle QPR = 180^\circ - 135^\circ = 45^\circ$

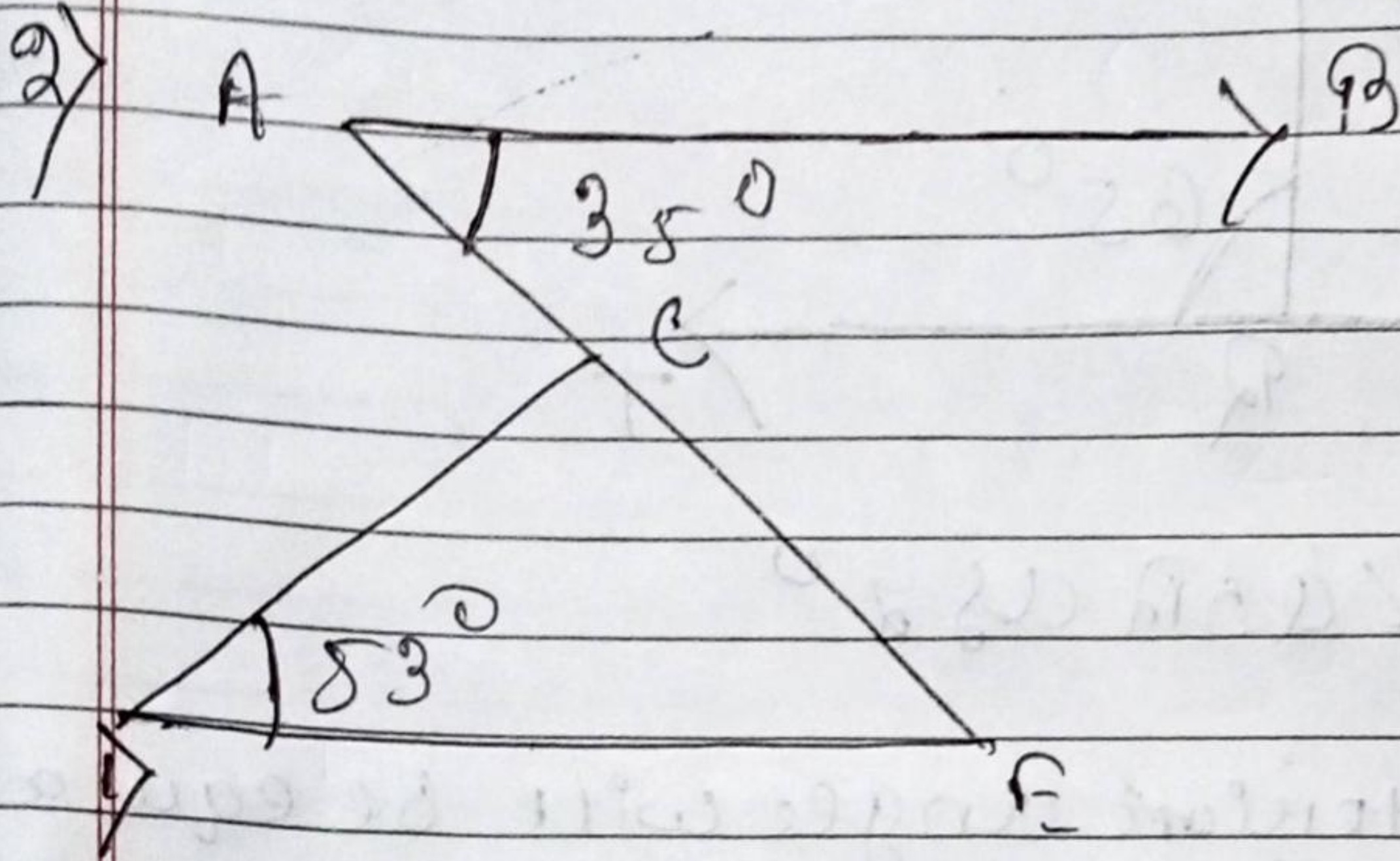
②  $\angle PQR + \angle PQT = 180^\circ$  (L.P)  $\Rightarrow \angle PQR = 180^\circ - 110^\circ = 70^\circ$

(Angle Sum property)

②  $\angle PQR + \angle PQT = 180^\circ$  (L.P)  $\Rightarrow 45^\circ + 70^\circ + z = 180^\circ$   
 $\Rightarrow 115^\circ + z = 180^\circ$   
 $\Rightarrow z = 180^\circ - 115^\circ = 65^\circ$



$\therefore$  Hence  ~~$\angle BAC$~~   $\angle PQR = 65^\circ$



To prove  $\angle DCE$ .

Given  $\angle BAC = 35^\circ$   
 $\angle CDE = 53^\circ$

Now  $\angle CED = 35^\circ$  (Alternate interior angle)

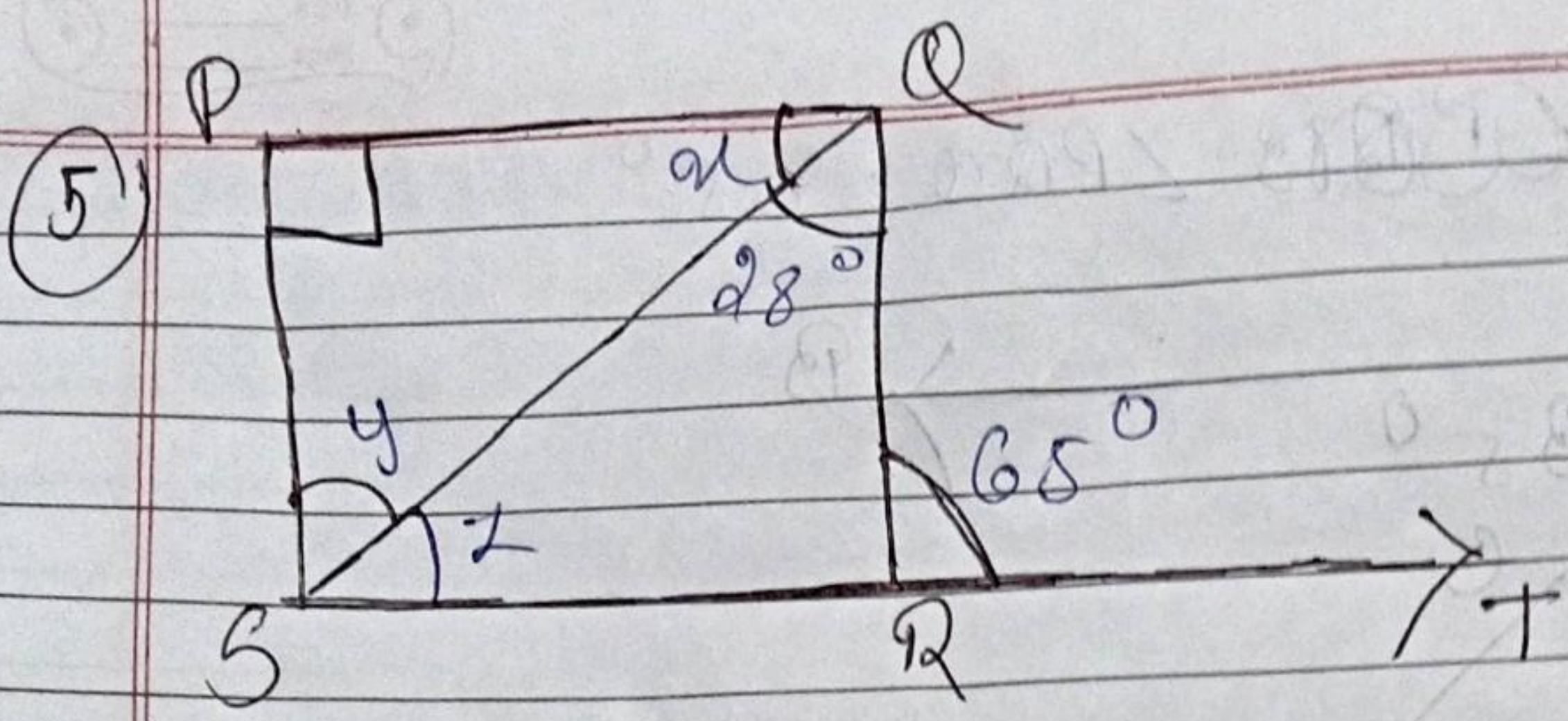
Now  $\angle DCE = 53^\circ + 35^\circ + x^\circ = 180^\circ$  (Angle sum property)

$$\Rightarrow x = 180^\circ - 88^\circ$$

$$\Rightarrow x = 92^\circ \text{ (prove)}$$

$\therefore$  Hence  $\angle DCE = 92^\circ$





Let us take  $\angle R S Q$  as  $x^\circ$

Now we exterior angle will be equal to the sum of interior angle.

$$\text{Now } \angle R S Q + \angle S Q R = 65^\circ$$

$$\Rightarrow x + 28^\circ = 65^\circ$$

$$\Rightarrow x = 65^\circ - 28^\circ$$

$$\Rightarrow x = 37^\circ$$

~~$$\Delta y \Rightarrow \angle P S Q + \angle R S Q = 180^\circ \text{ (Linear pair)}$$~~

~~$$\Rightarrow y + 37^\circ = 180^\circ$$~~

~~$$\Rightarrow y = 180^\circ - 37^\circ$$~~

~~$$\Rightarrow y = 143^\circ$$~~

$$\Rightarrow \angle S Q R = \angle P S Q \text{ (Alternate interior angle)}$$

$$\text{(} P Q \parallel S R \text{)}$$

$$\Rightarrow \angle P S Q = 28^\circ$$

$$\angle P Q S = x^\circ$$

$$\angle R S Q = 37^\circ$$

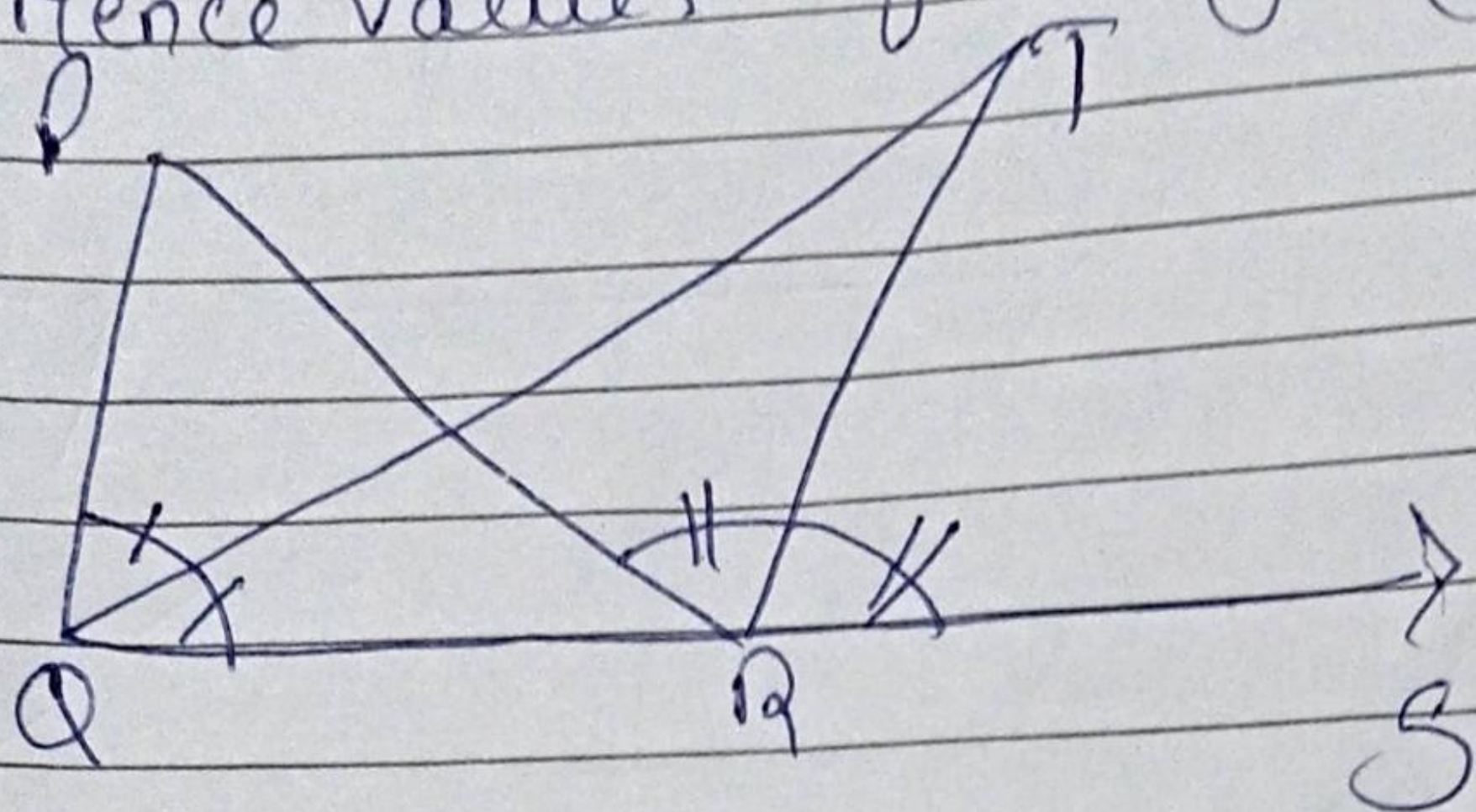
$$\angle P Q S = \angle R S Q \text{ (Alternate interior angle)}$$

$$\angle P Q S = 37^\circ$$



$\therefore$  (Hence values of  $x$  &  $y = (34^\circ, 28^\circ)$ )

(6)



Exterior  $\angle PRS = \angle PQR + \angle QPR$   
 [Exterior angle property]

$$\frac{1}{2} \angle PRS = \frac{1}{2} \angle PQR + \frac{1}{2} \angle QPR$$

$\angle TRS = \angle TRQ + \angle RTP$  (Exterior angle)

from (i) & (ii)

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

$$\Rightarrow \angle QTR = \frac{1}{2} \angle QPR \text{ (proved)}$$