

# Mathematics

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(Chapter – 7) (Triangles)(Exemplar Problems)  
(Class – IX)

## Exercise 7.3

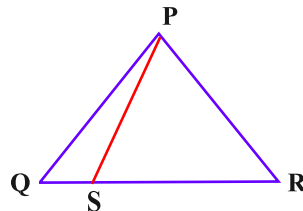
### Question 6:

S is any point on side QR of a  $\Delta PQR$ . Show that:  $PQ + QR + RP > 2 PS$ .

### Answer 6:

**Given:** S is any point on side QR of a  $\Delta PQR$ .

**To Prove:**  $PQ + QR + RP > 2 PS$ .



**Proof:** In  $\Delta PQS$ ,  $PQ + QS > PS$  ... (i)

[ $\because$  In a triangle, the sum of two sides is always greater than the third side]

Similarly, in  $\Delta PSR$ ,  $PR + RS > PS$  ... (ii)

[ $\because$  In a triangle, the sum of two sides is always greater than the third side]

Adding (i) and (ii), we get

$$PQ + QS + PR + RS > PS + PS$$

$$\Rightarrow PQ + (QS + RS) + PR > 2 PS$$

$$\Rightarrow PQ + QR + RP > 2 PS$$

[ $\because QS + RS = QR$ ]

Hence Proved.

