

# Mathematics

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

## Exercise 7.3

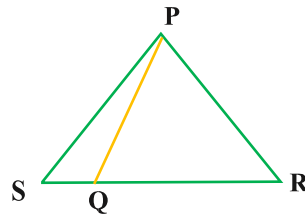
### Question 5:

Q is a point on the side SR of a  $\Delta PSR$  such that  $PQ = PR$ . Prove that  $PS > PQ$ .

### Answer 5:

Given: In  $\Delta PSR$ ,  $PQ = PR$ .

To Prove:  $PS > PQ$ .



Proof:  $PQ = PR$

[ $\because$  Given]

$\angle R = \angle PQR$

[ $\because$  Angles opposite to equal sides]

$\angle PQR$  is exterior angle of  $\Delta PSQ$

$\angle PQR = \angle S + \angle SPQ$

[ $\because$  Exterior angle property]

$\Rightarrow \angle PQR > \angle S$

$\angle PQR = \angle R$

[ $\because$  Proved above]

$\angle R > \angle S$

Now, in  $\Delta PSR$ ,  $\angle R > \angle S$

[ $\because$  Proved above]

$PS > PR$

[ $\because$  Greater angle has longer side opposite to it]

But  $PQ = PR$

[ $\because$  Given]

$\Rightarrow PS > PQ$

Hence Proved.

