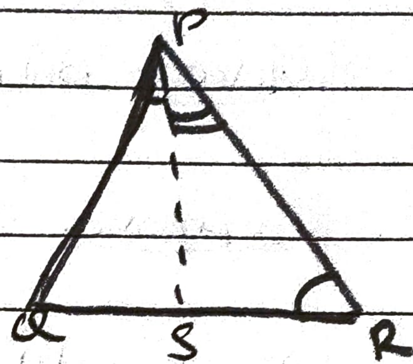
Date ______
Page ______

Exercise 7.4

5. In fig 7.51, PR > PQ and PS bisects $\angle QPR$. Prove that $\angle PSR > \angle PSQ$.



→ Given: PR > PQ
PS bisects $\angle QPR$

To prove: $\angle PSR > \angle PSQ$

Proof: $\angle QPS = \angle RPS$ — (PS bisect $\angle QPR$)

$\angle PQR > \angle PRQ$ — (PR > PQ)

$\angle QPS = \angle RPS$
$\angle PSR > \angle PSQ$ (as the sum of the angles of the a triangle is 180°)

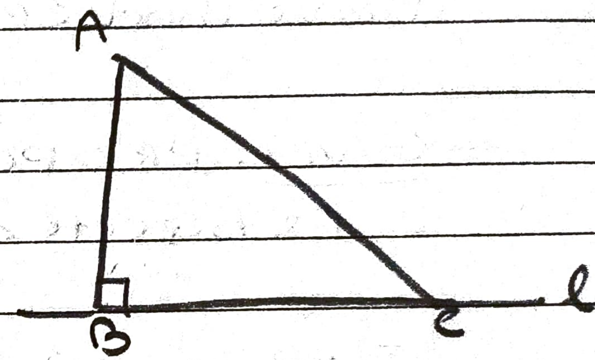
$\angle QPS + \angle PQS + \angle PSQ = 180^\circ$
$\angle PQS + \angle PSR + \angle PRS = 180^\circ$

$\therefore \angle QPS = \angle PRS$

As $\angle PQS > \angle PRS$
$\Rightarrow \angle PSR > \angle PSQ$
(Proved)

Date ______ Page ______

6. Show that of all line segment drawn from a given point not on it, the perpendicular line segment is the shortest.



→ Given: BA ⊥ l

To prove: AB < AC

Proof: ΔABC, $B = 90°$

$A + B + C = 180°$

∴ $A + C = 90°$

Hence, C must be an acute angle which implies C < B.

So AB < AC (as the side opposite to the larger angle is always larger)