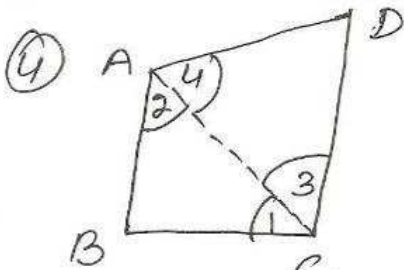


ex 7.4



given AB is shortest,
CD is longest
side

to prove $\angle A > \angle C, \angle B > \angle D$

const - join AC

Proof - In $\triangle ABC$

$$BC > AB$$

$$\Rightarrow \angle 2 > \angle 1 \dots \textcircled{1}$$

In $\triangle ACD$

$$CD > AD$$

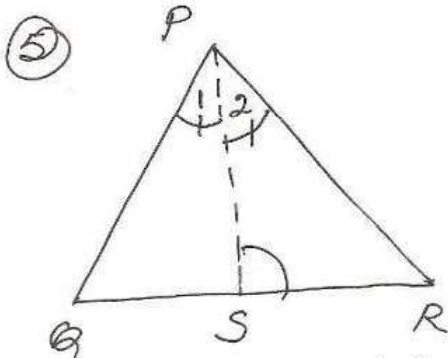
$$\Rightarrow \angle 4 > \angle 3 \dots \textcircled{2}$$

$$\textcircled{1} + \textcircled{2}$$

$$\angle 2 + \angle 4 > \angle 1 + \angle 3$$

$$\angle A > \angle C$$

Sim. $\angle B > \angle D$



given - In fig.
 $PR > PQ$, PS bisects
 $\angle P$

$$\angle 1 = \angle 2$$

to prove $\angle PSR > \angle PSQ$

Proof

In $\triangle PQR$

$$PR > PQ$$

$$\angle R > \angle Q$$

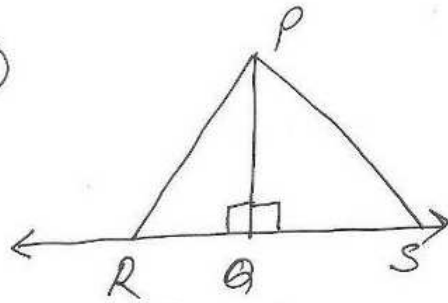
adding \angle on both
Sides

$$\angle R + \angle 1 > \angle Q + \angle 2$$

$$\angle PSR > \angle PSQ \quad (\because \angle 1 = \angle 2)$$

$$\angle PSR > \angle PSQ \quad [\text{exterior } \angle \text{ prop.}]$$

6



to prove $PQ < PR$
 $PQ < PS$

proof - In $\triangle PQR$,
 $\angle Q = 90^\circ$

$\therefore PR > PQ$ [In a
rt \triangle
hyp. is
longest
side]

$$\Rightarrow PQ < PR$$

Sim. $PQ < PS$