



In figure $SR = SQ$, RT is bisector of angle PRS . Prove $QP = QS$

given - In figure: $SR = SQ$
 RT is bisector of $\angle QRS$

to prove $QP = QS$

proof $\angle 1 = \angle P + \angle 2$ (exterior \angle prop of Δ)
 But $\angle 1 = \angle 3$ (isosceles Δ prop)
 $\angle 3 = \angle P + \angle 2$
 $2\angle 4 = \angle P + \angle 2$ ($\because RT$ bisects $\angle QRS$)
 But $\angle 4 = \angle 2$
 $2\angle 2 = \angle P + \angle 2$
 $\Rightarrow \angle 2 = \angle P$
 $\Rightarrow QP = QS$ (converse of isos Δ prop.)