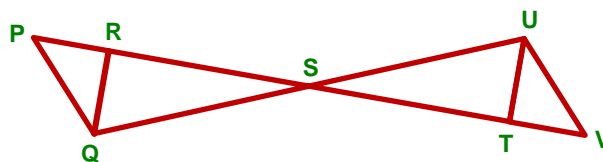


Geometric Proofs #10 – Multiple Triangle Pairs

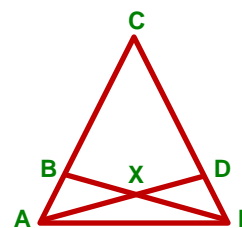
Given: $\angle QRS$ and $\angle UTS$ are right angles
 $\overline{QS} \cong \overline{US}$ and $\overline{PQ} \cong \overline{VU}$



Prove: $\angle P \cong \angle V$

Step	Statement	Step	Reason
1)	$\angle QRS$ and $\angle UTS$ are right angles	1)	Given
2)	$m\angle QRS = 90^\circ$, $m\angle UTS = 90^\circ$	2)	Definition of Right Angle
3)	$m\angle QRS = m\angle UTS$	3)	Substitution Property (from step 2)
4)	$\angle QRS \cong \angle UTS$	4)	Two angles with equal measures are congruent
5)	$\overline{QS} \cong \overline{US}$	5)	Given
6)	$\angle RSQ \cong \angle TSU$	6)	Vertical angles are congruent
7)	$\triangle RSQ \cong \triangle TSU$	7)	AAS (from steps 4, 5, and 6)
8)	$\overline{RQ} \cong \overline{TU}$	8)	CPCTC
9)	$\overline{PQ} \cong \overline{VU}$	9)	Given
10)	$\triangle PQR$ and $\triangle VUT$ are right triangles	10)	Definition of Right Triangle (from step 1)
11)	$\triangle PQR \cong \triangle VUT$	11)	HL (from steps 8, 9, and 10)
12)	$\angle P \cong \angle V$	12)	CPCTC

Given: $\overline{CA} \cong \overline{CE}$ and $\overline{BA} \cong \overline{DE}$



Prove: $\overline{BX} \cong \overline{DX}$

Step	Statement	Step	Reason
1)	$\overline{BA} \cong \overline{DE}$	1)	Given
2)	$\overline{CA} \cong \overline{CE}$	2)	Given
3)	$\angle CAE \cong \angle CEA$	3)	Two congruent Δ sides \rightarrow congruent opposite angles
4)	$\overline{AE} \cong \overline{AE}$	4)	Reflexive Property
5)	$\triangle BAE \cong \triangle DEA$	5)	SAS (from steps 1, 3, and 4)
6)	$\angle ABE \cong \angle EDA$	6)	CPCTC
7)	$\angle BXA \cong \angle DXE$	7)	Vertical angles are congruent
8)	$\triangle BXA \cong \triangle DXE$	8)	AAS (from steps 1, 6, and 7)
9)	$\overline{BX} \cong \overline{DX}$	9)	CPCTC