

Name: Key Date: _____

Triangle Proofs

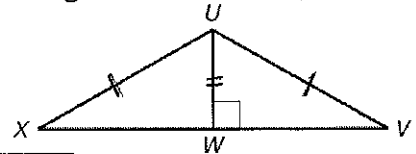
2 Column Proofs:

A deductive argument that contains statements and reasons organized in two columns.

Example:

Given: $\triangle UXW \cong \text{and} \triangle UVW$ are right triangles, $\overline{UX} \cong \overline{UV}$

Prove: $\angle X \cong \angle V$

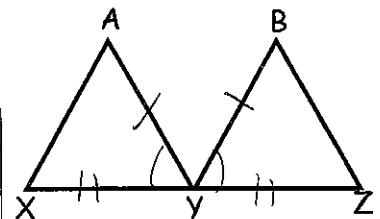


Statements	Reasons
1) $\triangle UXW$ and $\triangle UVW$ are right triangles	Given
2) $\overline{UX} \cong \overline{UV}$	Given
3) $\overline{UW} \cong \overline{UW}$	Reflexive
4) $\triangle UXW \cong \triangle UVW$	HL \cong Postulate
5) $\angle X \cong \angle V$	CPCTC

Practice #1:

Given: Y is the midpoint of \overline{XZ} , $\overline{AY} \cong \overline{BY}$, and $\angle AYX \cong \angle BYZ$.

Prove: $\triangle XYA \cong \triangle ZYB$

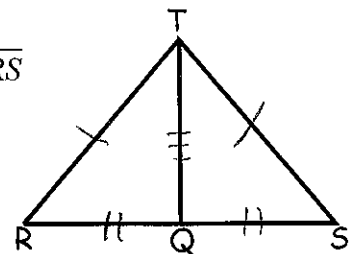


Statements	Reasons
1) $\overline{AY} \cong \overline{BY}$	Given
2) $\angle AYX \cong \angle BYZ$	Given
3) Y is the midpoint of \overline{XZ}	Given
4) $\overline{XY} \cong \overline{YZ}$	Defn. of midpoint
5) $\triangle XYA \cong \triangle ZYB$	SAS \cong Postulate

Practice #2:

Given: $\triangle RTS$ is isosceles with legs \overline{RT} and \overline{TS} . Q is the midpoint of \overline{RS}

Prove: $\triangle RTQ \cong \triangle STQ$

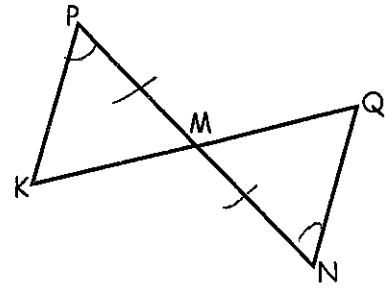


Statements	Reasons
1) $\triangle RTS$ is isosceles w/ legs \overline{RT} + \overline{TS}	Given
2) $\overline{RT} \cong \overline{TS}$	Defn. of isosceles \triangle
3) Q is the midpoint of \overline{RS}	Given
4) $\overline{RQ} \cong \overline{SQ}$	Defn. of midpoint
5) $\overline{TQ} \cong \overline{TQ}$	Reflexive Property
6) $\triangle RTQ \cong \triangle STQ$	SSS \cong Postulate

Practice #3:

Given: $\angle P \cong \angle N, \overline{PM} \cong \overline{NM}$ Prove: $\triangle PMK \cong \triangle NMQ$

Statements	Reasons
1) $\angle P \cong \angle N$	Given
2) $\overline{PM} \cong \overline{NM}$	Given
3) $\angle PMK \cong \angle NMQ$	Defn. of vertical \angle s
4)	ASA \cong Postulate



Practice #4:

Given: $\angle L \cong \angle J, \overline{LM} \parallel \overline{KJ}$ Prove: $\triangle LKM \cong \triangle JMK$

Statements	Reasons
1) $\angle L \cong \angle J$	Given
2) $\overline{KJ} \parallel \overline{LM}$	Given
3) $\angle LMK \cong \angle JKM$	Alt. Interior \angle s Theorem
4) $\overline{MK} \cong \overline{KM}$	Reflexive Property
5) $\triangle LKM \cong \triangle JMK$	AAS \cong Postulate

