

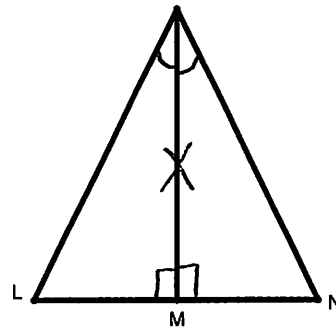
Proving Triangles Congruent Test Review

Name Key

1.

Given: $\overline{KM}$ is the altitude to $\overline{LN}$
 $\overline{KM}$ bisects $\angle LKN$

Prove: $\overline{LK} \cong \overline{NK}$

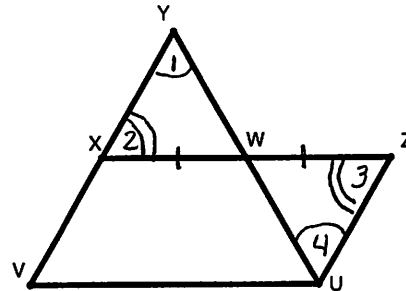


Statements	Reasons
① $\overline{KM}$ is alt to $\overline{LN}$ $\overline{KM}$ bisects $\angle LKN$	① Given
② $\overline{KM}$ is $\perp$ to $\overline{LN}$	② If alt is given 2 $\perp$ seg formed
③ $\angle KML \cong \angle KMN$	③ If $\perp$ seg formed then 2 $\cong 90^\circ$'s formed.
④ $\angle LKM \cong \angle NKM$	④ If $\angle$ is bisected then 2 $\cong$ $\angle$'s formed
⑤ $\overline{KM} \cong \overline{KM}$	⑤ Reflexive Prop
⑥ $\triangle LKM \cong \triangle NKM$	⑥ ASA
⑦ $\overline{LK} \cong \overline{NK}$	⑦ CPCTC

2.

Given: $\overline{VY} \parallel \overline{ZU}$; W is the midpoint of $\overline{XZ}$

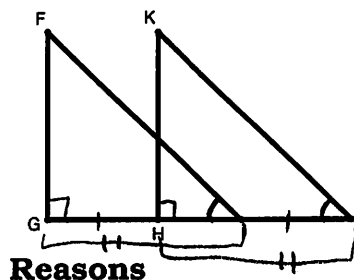
Prove: $\triangle YXW \cong \triangle UWZ$



Statements	Reasons
① $\overline{VY} \parallel \overline{ZU}$ W is midpt of $\overline{XZ}$	① Given
② $\angle 1 \cong \angle 4$, $\angle 2 \cong \angle 3$	② If $\parallel$ lines are given then alt. int $\angle$'s are $\cong$
③ $\overline{XW} \cong \overline{ZW}$	③ If midpt is given then 2 $\cong$ seg. are formed
④ $\triangle YXW \cong \triangle UWZ$	④ AAS

3. **Given:** $\overline{FG} \perp \overline{GJ}$; $\overline{KH} \perp \overline{GJ}$; $\overline{GH} \cong \overline{IJ}$;
 $\angle FIG \cong \angle KJH$

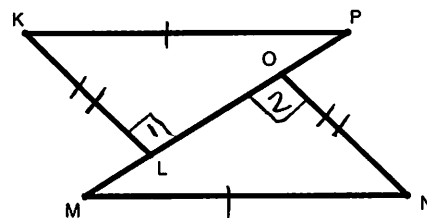
Prove: $\triangle FGI \cong \triangle KHJ$



Statements	Reasons
① $\overline{FG} \perp \overline{GJ}$ $\overline{KH} \perp \overline{GJ}$ $\overline{GH} \cong \overline{IJ}$ $\angle FIG \cong \angle KJH$	① Given
② $\angle FGH \cong \angle KHI$	② If $\perp$ seg given then $2 \cong 90^\circ$ $\angle$'s formed
③ $\overline{HI} \cong \overline{HI}$	③ Reflexive Prop.
④ $\overline{GH} + \overline{HI} \cong \overline{HI} + \overline{IJ}$	④ Addition Prop of Equality
⑤ $\overline{GI} \cong \overline{HJ}$	⑤ Segment Addition Postulate
⑥ $\triangle FGI \cong \triangle KHJ$	⑥ ASA

4. **Given:** $\overline{KP} \cong \overline{NM}$; $\overline{NO} \cong \overline{KL}$; $\overline{KL} \perp \overline{MP}$; $\overline{NO} \perp \overline{MP}$

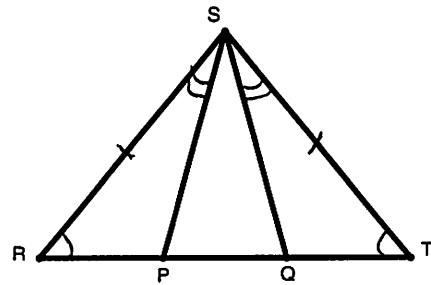
Prove: $\overline{ML} \cong \overline{PO}$



Statements	Reasons
① $\overline{KP} \cong \overline{NM}$ $\overline{NO} \cong \overline{KL}$ $\overline{KL} \perp \overline{MP}$ $\overline{NO} \perp \overline{MP}$	① Given
② $\angle 1 \cong \angle 2$	② If 2 seg are $\perp$ then $2 \cong 90^\circ$ $\angle$'s formed
③ $\triangle KLP \cong \triangle NOM$	③ HL
④ $\overline{PL} \cong \overline{MO}$	④ CPCTC
⑤ $\overline{LO} \cong \overline{LO}$	⑤ Reflexive Prop.
⑥ $\overline{PL} - \overline{LO} \cong \overline{MO} - \overline{LO}$	⑥ Subtraction Prop. of Equality
⑦ $\overline{PO} \cong \overline{ML}$	⑦ Segment Subtraction Postulate

5. **Given:** $\angle R \cong \angle T$; $\angle RSP \cong \angle TSQ$

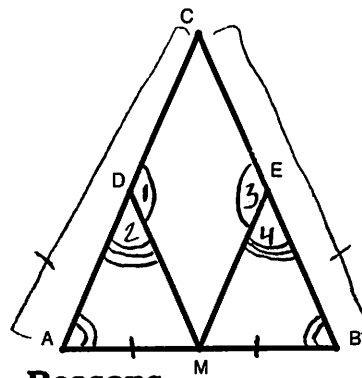
Prove: $\triangle PSQ$ is isosceles



Statements	Reasons
① $\angle R \cong \angle T$ $\angle RSP \cong \angle TSQ$	① Given
② $\overline{RS} \cong \overline{TS}$	② If sides of a $\triangle$ are opp $\cong$ $\angle$'s then the sides are $\cong$
③ $\triangle RSP \cong \triangle TSQ$	③ ASA
④ $\overline{PS} \cong \overline{QS}$	④ CPCTC
⑤ $\triangle PSQ$ is isos	⑤ If 2 sides of a $\triangle$ are $\cong$ then the $\triangle$ is isos

6. **Given:** $\overline{CA} \cong \overline{CB}$; $\angle CDM \cong \angle CEM$;
M is the midpoint of $\overline{AB}$

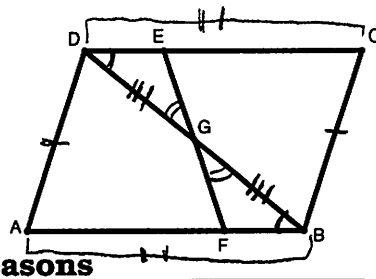
Prove: $\overline{AD} \cong \overline{BE}$



Statements	Reasons
① $\overline{CA} \cong \overline{CB}$ $\angle CDM \cong \angle CEM$ M is midpt of $\overline{AB}$	① Given
② $\angle A \cong \angle B$	② If 2 sides of a $\triangle$ are $\cong$ then $\angle$'s opposite those sides are $\cong$
③ $\overline{AM} \cong \overline{BM}$	③ If midpt is given then 2 $\cong$ segments are formed
④ $\angle 1$ and $\angle 2$ are supp $\angle 3$ and $\angle 4$ are supp	④ Linear Pairs of $\angle$'s are supplementary
⑤ $\angle 2 \cong \angle 4$	⑤ If 2 $\angle$'s are supplements to $\cong$ $\angle$'s then those $\angle$'s are $\cong$
⑥ $\triangle ADM \cong \triangle BEM$	⑥ AAS
⑦ $\overline{AD} \cong \overline{BE}$	⑦ CPCTC

7. **Given:** $\overline{AD} \cong \overline{CB}$; $\overline{DC} \cong \overline{BA}$; $\overline{EF}$ bisects $\overline{BD}$ at G ;

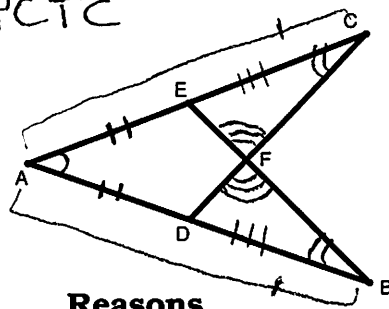
Prove: $\overline{FG} \cong \overline{EG}$



Statements	Reasons
① $\overline{AD} \cong \overline{CB}$ $\overline{DC} \cong \overline{BA}$ $\overline{EF}$ bisects $\overline{BD}$ at G	① Given
② $\overline{DB} \cong \overline{DB}$	② Reflexive Prop
③ $\triangle ADB \cong \triangle CBD$	③ SSS
④ $\angle BDC \cong \angle DBA$	④ CPCTC
⑤ $\angle DGE \cong \angle BGF$	⑤ Vertical $\angle$'s are $\cong$
⑥ $\overline{DG} \cong \overline{BG}$	⑥ If seg is bisected 2 $\cong$ seg formed
⑦ $\triangle DEG \cong \triangle BFG$	⑦ ASA
⑧ $\overline{FG} \cong \overline{EG}$	⑧ CPCTC

8. **Given:** $\overline{AB} \cong \overline{AC}$; $\overline{AD} \cong \overline{AE}$

Prove: $\overline{CF} \cong \overline{BF}$



Statements	Reasons
① $\overline{AB} \cong \overline{AC}$ $\overline{AD} \cong \overline{AE}$	① Given
② $\angle A \cong \angle A$	② Reflexive Prop
③ $\triangle ACD \cong \triangle ABE$	③ SAS
④ $\angle B \cong \angle C$	④ CPCTC
⑤ $\angle EFC \cong \angle DFB$	⑤ Vertical $\angle$'s are $\cong$
⑥ $\overline{AB} - \overline{AD} \cong \overline{AC} - \overline{AE}$	⑥ Subtraction Prop of Equality
⑦ $\overline{BD} \cong \overline{CE}$	⑦ Segment Subtraction Postulate
⑧ $\triangle DFB \cong \triangle EFC$	⑧ AAS
⑨ $\overline{CF} \cong \overline{BF}$	⑨ CPCTC