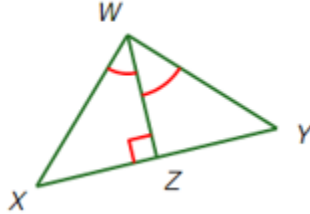


Section 8.1
Congruent Triangle Proofs

1. Given : $\overline{WZ} \perp \overline{XY}$
 $\angle YWZ \cong \angle XWZ$

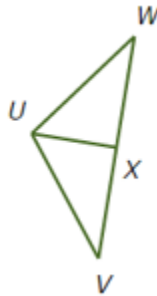
Prove: $\overline{WX} \cong \overline{WY}$



Statement	Reason
1. $\overline{WZ} \perp \overline{XY}$	1. Given
2. $\angle WZX$ and $\angle WZY$ are right angles	2. Definition of Perpendicular
3. $\angle WZX \cong \angle WZY$	3. Two right angles are congruent
4. $\angle YWZ \cong \angle XWZ$	4. Given
4. $\overline{WZ} \cong \overline{WZ}$	4. Reflexive property of congruence
5. $\triangle WXZ \cong \triangle WYZ$	5. ASA
6. $\overline{WX} \cong \overline{WY}$	6. CPCTC

2. Given: x is the midpoint of \overline{VW}
 $\overline{UX} \perp \overline{VW}$

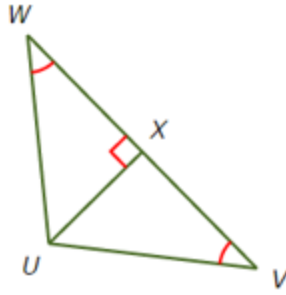
Prove: $\angle V \cong \angle W$



Statement	Reason
1. x is the midpoint of \overline{VW}	1. Given
2. $\overline{VX} \cong \overline{WX}$	2. Definition of a midpoint
3. $\overline{UX} \perp \overline{VW}$	3. Given
4. $\angle UXV$ and $\angle UXW$ are right angles	4. Perpendicular lines form right angles
5. $\angle UXV \cong \angle UXW$	5. All right angles are congruent
6. $\overline{UX} \cong \overline{UX}$	6. Reflexive property of congruence
6. $\triangle UVX \cong \triangle UWX$	6. SAS
7. $\angle V \cong \angle W$	7. CPCTC

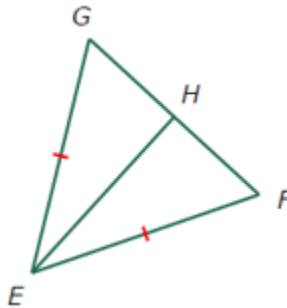
3. Given: $\overline{VW} \perp \overline{UX}$
 $\angle V \cong \angle W$

Prove: $\overline{WX} \cong \overline{VX}$



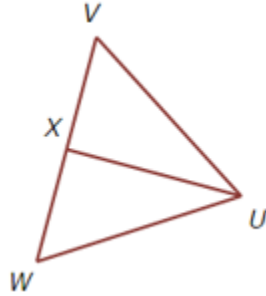
Statement	Reason
1. $\overline{VW} \perp \overline{UX}$	1. Given
2. $\angle UXV$ and $\angle UXW$ are right angles	2. Definition of Perpendicular
3. $\angle UXV \cong \angle UXW$	3. Right angles are congruent
4. $\angle V \cong \angle W$	4. Given
5. $\overline{UX} \cong \overline{UX}$	5. Reflexive property of congruence
6. $\triangle UVX \cong \triangle UWX$	6. AAS
7. $\overline{WX} \cong \overline{VX}$	7. CPCTC

4. Given: \overline{EH} bisects $\angle FEG$
 $\overline{EF} \cong \overline{EG}$
 Prove: $\overline{FH} \cong \overline{GH}$



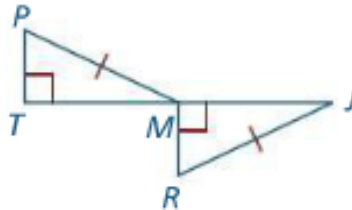
Statement	Reason
1. \overline{EH} bisects $\angle FEG$	1. Given
2. $\angle FEH \cong \angle GEH$	2. Definition of an angle bisector
3. $\overline{EF} \cong \overline{EG}$	3. Given
4. $\overline{EH} \cong \overline{EH}$	4. Reflexive property of congruence
5. $\triangle EFH \cong \triangle EGH$	5. SAS
6. $\overline{FH} \cong \overline{GH}$	6. CPCTC

5. Given: x is the midpoint of \overline{VW}
 $\overline{UV} \cong \overline{UW}$
 Prove: $\angle UXV \cong \angle UXW$



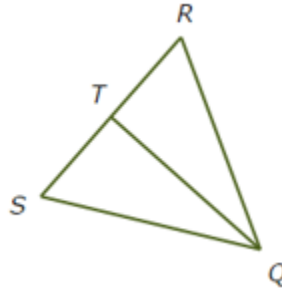
Statement	Reason
1. x is the midpoint of \overline{VW}	1. Given
2. $\overline{VX} \cong \overline{WX}$	2. Definition of a midpoint
3. $\overline{UV} \cong \overline{UW}$	3. Given
4. $\overline{UX} \cong \overline{UX}$	4. Reflexive property of congruence
5. $\triangle UVX \cong \triangle UWV$	5. SSS
6. $\angle UXV \cong \angle UXW$	6. CPCTC

6. Given: $\overline{PM} \cong \overline{RJ}$
 $\overline{PT} \perp \overline{TJ}$
 $\overline{RM} \perp \overline{TJ}$
 M is the midpoint of \overline{TJ}
 Prove: $\triangle PTM \cong \triangle RMJ$



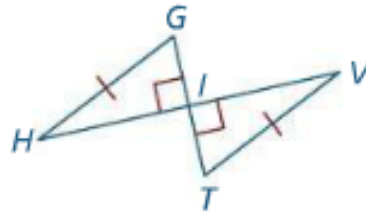
Statement	Reason
1. $\overline{PM} \cong \overline{RJ}$	1. Given
2. $\overline{PT} \perp \overline{TJ}$; $\overline{RM} \perp \overline{TJ}$	2. Given
3. $\angle T$ and $\angle RMJ$ are right angles	3. Definition of Perpendicular
4. $\triangle PTM$ and $\triangle RMJ$ are right triangles	4. Definition of a right triangle
5. M is the midpoint of \overline{TJ}	5. Given
6. $\overline{TM} \cong \overline{JM}$	6. Definition of a Midpoint
7. $\triangle PTM \cong \triangle RMJ$	7. HL

7. Given: $\angle R \cong \angle S$
 $\angle RQT \cong \angle SQT$
 Prove: $\overline{QS} \cong \overline{QR}$



Statement	Reason
1. $\angle R \cong \angle S$	1. Given
2. $\angle RQT \cong \angle SQT$	2. Given
3. $\overline{QT} \cong \overline{QT}$	3. Reflexive property of congruence
4. $\triangle QRT \cong \triangle QST$	4. AAS
5. $\overline{QS} \cong \overline{QR}$	5. CPCTC

8. Given: $\overline{HV} \perp \overline{GT}$
 $\overline{GH} \cong \overline{TV}$
 I is the midpoint of \overline{HV}
 Prove: $\triangle IGH \cong \triangle ITV$

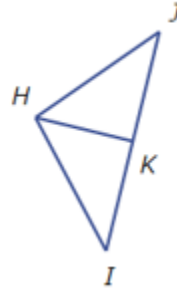


Statement	Reason
1. $\overline{HV} \perp \overline{GT}$	1. Given
2. $\angle GIH$ and $\angle VIT$ are right angles	2. Definition of Perpendicular
3. $\triangle IGH$ and $\triangle ITV$ are right triangles	3. Definition of a right triangle
4. $\overline{GH} \cong \overline{TV}$	4. Given
5. I is the midpoint of \overline{HV}	5. Given
6. $\overline{HI} \cong \overline{VI}$	6. Definition of a Midpoint
7. $\triangle IGH \cong \triangle ITV$	7. HL

9. Given: K is the midpoint of \overline{IJ}

$$\overline{HI} \cong \overline{HJ}$$

Prove: $\angle HKJ \cong \angle HKI$

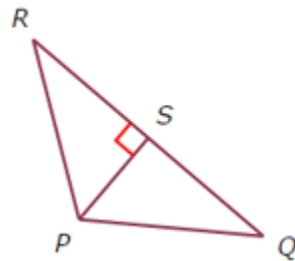


Statement	Reason
1. K is the midpoint of \overline{IJ}	1. Given
2. $\overline{IK} \cong \overline{KJ}$	2. Definition of a midpoint
3. $\overline{HI} \cong \overline{HJ}$	3. Given
4. $\overline{HK} \cong \overline{HK}$	4. Reflexive Property of Congruence
5. $\triangle HKI \cong \triangle HKJ$	5. SSS
6. $\angle HKJ \cong \angle HKI$	6. CPCTC

10. Given: S is the midpoint of \overline{QR}

$$\overline{PS} \perp \overline{QR}$$

Prove: $\angle R \cong \angle Q$



Statement	Reason
1. S is the midpoint of \overline{QR}	1. Given
2. $\overline{RS} \cong \overline{SQ}$	2. Definition of a Midpoint
3. $\overline{PS} \perp \overline{QR}$	3. Given
4. $\angle PSR$ and $\angle PSQ$ are right angles	4. Definition of Perpendicular
5. $\angle PSR \cong \angle PSQ$	5. Right angles are congruent
6. $\overline{PS} \cong \overline{PS}$	6. Reflexive Property of Congruence
7. $\triangle PSR \cong \triangle PSQ$	7. SAS
7. $\angle R \cong \angle Q$	7. CPCTC

