Name PART 3 Date

Recall: CPCTC stands for Corresponding Parts of Congruent Triangles are Congruent. State what you know is congruent if you are given that $\Delta ABC \cong \Delta DEF$

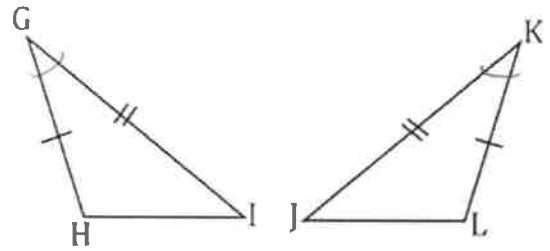
Angles: $\angle A \cong \angle D$ $\angle B \cong \angle E$ $\angle C \cong \angle F$

Sides: $\overline{AB} \cong \overline{DE}$ $\overline{BC} \cong \overline{EF}$ $\overline{AC} \cong \overline{DF}$

Before you use CPCTC in your proof, you MUST prove that the triangles in question are congruent first.

Note: number of statement is merely a guide. You may require more or less statements to complete your proof depending on your approach.

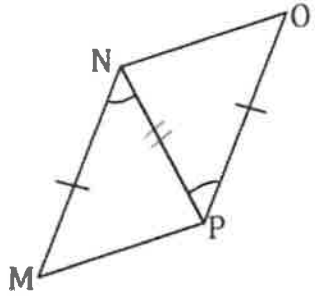
Given: $\overline{GH} \cong \overline{KL}$, $\angle G \cong \angle K$, and $\overline{GI} \cong \overline{KJ}$



Prove: $\overline{HI} \cong \overline{LJ}$

Statements	Reasons
1. $\overline{GH} \cong \overline{KL}$	1. Given
2. $\angle G \cong \angle K$	2. Given
3. $\overline{GI} \cong \overline{KJ}$	3. Given
4. $\Delta HGI \cong \Delta LKJ$	4. SAS
5. $\overline{HI} \cong \overline{LJ}$	5. CPCTC

Given: $\angle MNP \cong \angle OPN$, and $\overline{MN} \cong \overline{OP}$

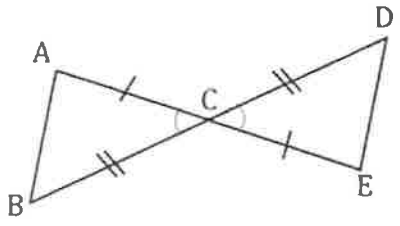


Prove: $\overline{MP} \cong \overline{ON}$

Statements	Reasons
1. $\angle MNP \cong \angle OPN$	1. Given
2. $\overline{MN} \cong \overline{OP}$	2. Given
3. $\overline{NP} \cong \overline{NP}$	3. Reflexive
4. $\Delta MNP \cong \Delta OPN$	4. SAS
5. $\overline{MP} \cong \overline{ON}$	5. CPCTC

Given: $\overline{AC} \cong \overline{CE}$, $\overline{DC} \cong \overline{BC}$

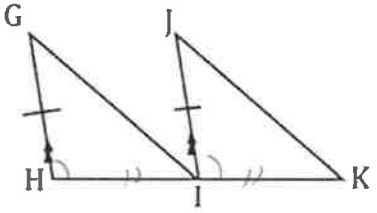
Prove: $\angle B \cong \angle D$



Statements	Reasons
1. $\overline{AC} \cong \overline{CE}$	1.
2. $\overline{DC} \cong \overline{BC}$	2. Given
3. $\angle ACB \cong \angle ECD$	3. Vert $\angle$s
4. $\triangle ABC \cong \triangle EDC$	4. SAS
5. $\angle B \cong \angle D$	5. CPCTC

Given: $\overline{GH} \| \overline{JI}$, I is the midpoint of HK and $\overline{GH} \cong \overline{JI}$

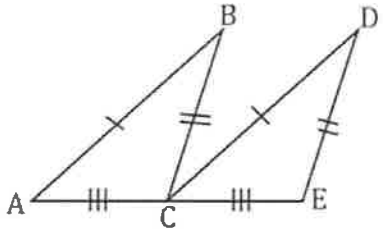
Prove: $\angle G \cong \angle J$



Statements	Reasons
1. $\overline{GH} \| \overline{JI}$	1. Given
2. I is the midpoint of $\overline{HK}$	2. Given
3. $\overline{GH} \cong \overline{JI}$	3. Given
4. $\overline{HI} \cong \overline{IK}$	4. Def of midpoint
5. $\angle GHI \cong \angle JIK$	5. Corresponding Angles
6. $\angle GHI \cong \triangle JIK$	6. SAS
7. $\angle G \cong \angle J$	7. CPCTC

Given: $\overline{AB} \cong \overline{CD}$, $\overline{BC} \cong \overline{DE}$, and $\overline{AC} \cong \overline{CE}$

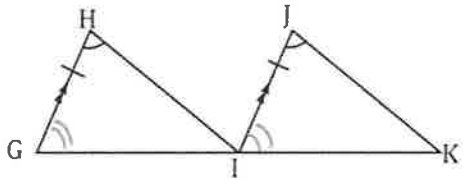
Prove: $\angle A \cong \angle DCE$



Statements	Reasons
1. $\overline{AB} \cong \overline{CD}$	1. Given
2. $\overline{BC} \cong \overline{DE}$	2. Given
3. $\overline{AC} \cong \overline{CE}$	3. Given
4. $\triangle ABC \cong \triangle CDE$	4. SSS
5. $\angle A \cong \angle DCE$	5. CPCTC

Given: $\overline{GH} \| \overline{IJ}$, $\angle H \cong \angle J$ and $\overline{GH} \cong \overline{IJ}$

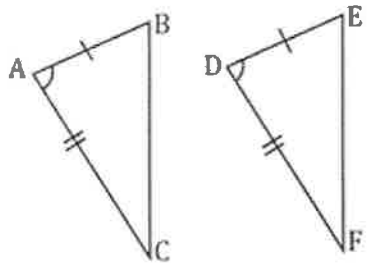
Prove: $\angle GIH \cong \angle IKJ$



Statements	Reasons
1. GH $\|\|$ IJ	1. Given
2. $\angle H \cong \angle J$	2. Given
3. $\overline{GH} \cong \overline{IJ}$	3. Given
4. $\angle HGI \cong \angle JIK$	4. Corresponding $\angle$s
5. $\triangle HGI \cong \triangle JIK$	5. ASA
6. $\angle GIH \cong \angle IKJ$	6. CPCTC

Given: $\overline{AB} \cong \overline{DE}$, $\angle A \cong \angle D$, and $\overline{AC} \cong \overline{DF}$

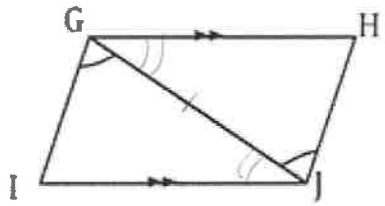
Prove: $\angle C \cong \angle F$



Statements	Reasons
1) $\overline{AB} \cong \overline{DE}$	1) Given
2) $\angle A \cong \angle D$	2) Given
3) $\overline{AC} \cong \overline{DF}$	3) Given
4) $\triangle ABC \cong \triangle DEF$	4) SAS
5) $\angle C \cong \angle F$	5) CPCTC

Given: $\overline{GH} \parallel \overline{IJ}$, $\angle IGJ \cong \angle HJG$

Prove: $\overline{IG} \cong \overline{HJ}$

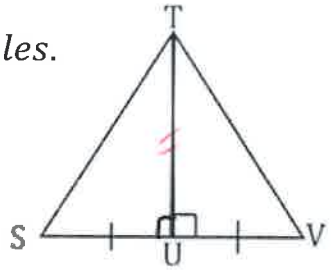


Statements	Reasons
1) $\overline{GH} \parallel \overline{IJ}$	1) Given
2) $\angle IGJ \cong \angle HJG$	2) Given
3) $\angle HGJ \cong \angle GJI$	3) Alt. Int. $\angle$s
4) $\overline{GJ} \cong \overline{GJ}$	4) Reflexive
5) $\triangle IGJ \cong \triangle HJG$	5) ASA
6) $\overline{IG} \cong \overline{HJ}$	6) CPCTC

Given: $\overline{SU} \cong \overline{UV}$

and $\angle TUS$ *and* $\angle TUV$ *are right angles.*

PROVE: $\overline{ST} \cong \overline{VT}$



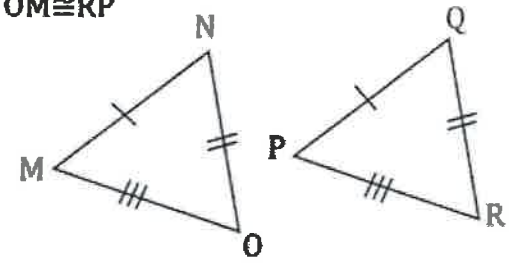
Statements	Reasons
1) $\overline{SU} \cong \overline{UV}$	1) Given
2) $\angle TUS$ & $\angle TUV$ are rt $\angle$s	2) Given
3) $\triangle TUS$ & $\triangle TUV$ are rt $\triangle$s	3) Def of rt $\triangle$ (optional)
4) $\overline{TU} \cong \overline{TU}$	4) Reflexive
5) $\triangle TUS \cong \triangle TUV$	5) SAS
6) $\overline{ST} \cong \overline{VT}$	6) CPCTC

Line 3 is optional

needed if using rt $\triangle$ rule

Given: $\overline{MN} \cong \overline{PQ}$, $\overline{NO} \cong \overline{QR}$, and $\overline{OM} \cong \overline{RP}$

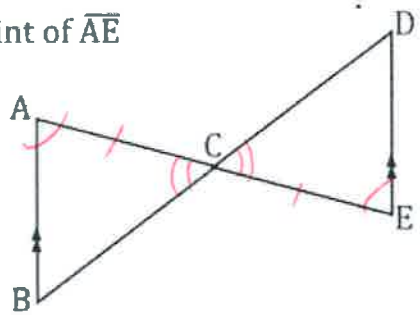
Prove: $\angle M \cong \angle P$



Statements	Reasons
1) $\overline{MN} \cong \overline{PQ}$	1) Given
2) $\overline{NO} \cong \overline{QR}$	2) Given
3) $\overline{OM} \cong \overline{RP}$	3) Given
4) $\triangle MNO \cong \triangle PQR$	4) SSS
5) $\angle M \cong \angle P$	5) CPCTC

Given: $\overline{AB} \parallel \overline{DE}$, C is the midpoint of $\overline{AE}$

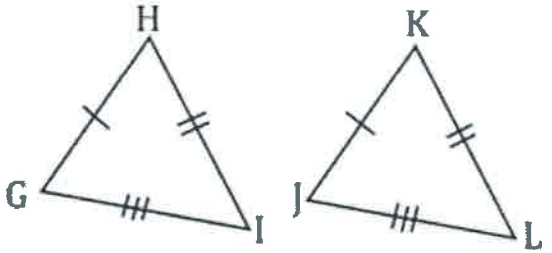
Prove: $\overline{BC} \cong \overline{DC}$



Statements	Reasons
1) $\overline{AB} \parallel \overline{DE}$	1) Given
2) C is m.p. of $\overline{AE}$	2) Given
3) $\overline{AC} \cong \overline{CE}$	3) def of m.p.
4) $\angle BAC \cong \angle DEC$	4) AIT int $\angle$s
5) $\angle ACB \cong \angle DCE$	5) vert $\angle$s
6) $\triangle ACB \cong \triangle ECD$	6) ASA
7) $\overline{BC} = \overline{DC}$	7) CPCTC

Given: $\overline{GH} \cong \overline{JK}$, $\overline{HI} \cong \overline{KL}$, and $\overline{IG} \cong \overline{LJ}$

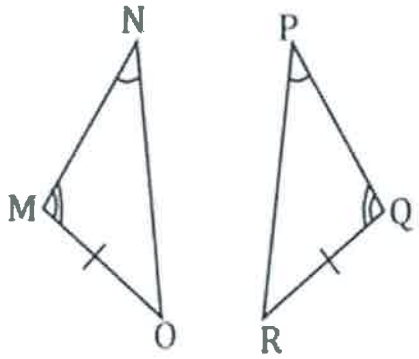
Prove: $\angle I \cong \angle L$



Statements	Reasons
$\overline{GH} \cong \overline{JK}$ $\overline{HI} \cong \overline{KL}$ $\overline{IG} \cong \overline{LJ}$	Given
$\triangle GHI \cong \triangle JKL$	SSS
$\angle I \cong \angle L$	CPCTC

Given: $\angle N \cong \angle P$, $\angle M \cong \angle Q$, and $\overline{MO} \cong \overline{QR}$

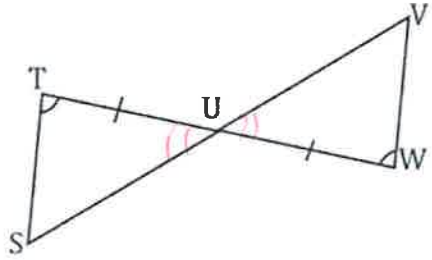
Prove: $\angle O \cong \angle R$



Statements	Reasons
$\angle N \cong \angle P$ $\angle M \cong \angle Q$ $\overline{MO} \cong \overline{QR}$	Given
$\triangle MNO \cong \triangle QPR$	AAS
$\angle O \cong \angle R$	CPCTC

Given: $\overline{TU} \cong \overline{WU}$, $\angle T \cong \angle W$

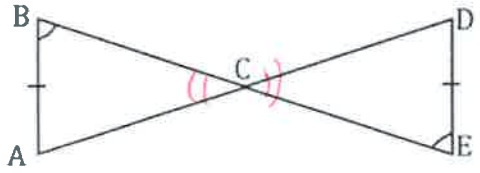
Prove: $\overline{TS} \cong \overline{WV}$



Statements	Reasons
$TU \cong WU$ $\angle T \cong \angle W$	Given
$\angle TUS \cong \angle VUW$	Vert $\angle$s
$\triangle TUS \cong \triangle WUS$	ASA
$TS \cong \overline{WV}$	CPCTC

Given: $\overline{AB} \cong \overline{DE}$, $\angle B \cong \angle E$

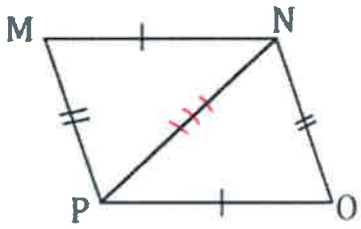
Prove: $\overline{AC} \cong \overline{DC}$



Statements	Reasons
$\overline{AB} \cong \overline{DE}$	Given
$\angle B \cong \angle E$	
$\angle BCA \cong \angle DCE$	VERT $\angle$'s
$\triangle BCA \cong \triangle ECD$	AAS
$\overline{AC} \cong \overline{DC}$	CPCTC

Given: $\overline{MN} \cong \overline{PO}$, $\overline{MP} \cong \overline{NO}$

Prove: $\angle M \cong \angle O$



Statements	Reasons
$\overline{MN} \cong \overline{PO}$	Given
$\overline{MP} \cong \overline{NO}$	
$\overline{PN} \cong \overline{PN}$	reflexive
$\triangle MNP \cong \triangle OPN$	SSS
$\angle M \cong \angle O$	CPCTC