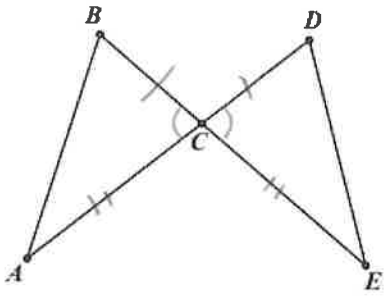
Name PART 2 Date _____

For each problem, do the following:

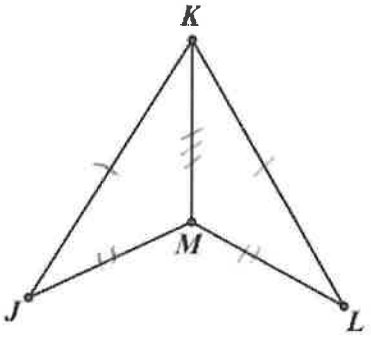
a. Show the given information in the diagram (using tick marks to show congruent sides and arcs to show congruent angles)
b. Show any other congruent parts you notice (from vertical angles, sides shared in common, or alternate interior angles with parallel lines)
c. Give the postulate or theorem that proves the triangles congruent (SSS, SAS, ASA, AAS, HL)
d. Finally, fill in the blanks to complete the proof.

1. Given: $\overline{BC} \cong \overline{DC}$; $\overline{AC} \cong \overline{EC}$
Prove: $\Delta BCA \cong \Delta DCE$



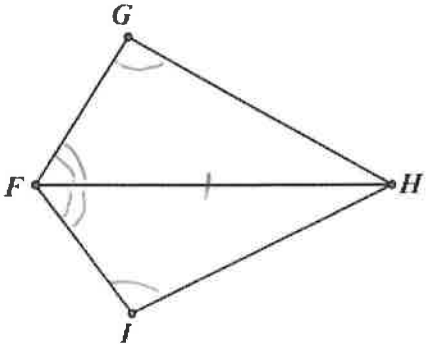
Statements	Reasons
1. $\overline{BC} \cong \overline{DC}$ $\overline{AC} \cong \overline{EC}$	1. Given
2. $\angle BCA \cong \angle DCE$	2. Vertical ∠s Theorem
3. $\Delta BCA \cong \Delta DCE$	3. SAS

2. Given: $\overline{JK} \cong \overline{LK}$; $\overline{JM} \cong \overline{LM}$
Prove: $\Delta KJM \cong \Delta KLM$



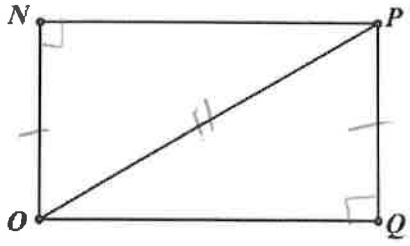
Statements	Reasons
1. $\overline{JK} \cong \overline{LK}$ $\overline{JM} \cong \overline{LM}$	1. Given
2. $\overline{KM} \cong \overline{KM}$	2. Reflexive Prop.
3. $\Delta KJM \cong \Delta KLM$	3. SSS

3. Given: $\angle G \cong \angle I$; $\overline{FH}$ bisects ∠GFI
Prove: $\Delta GFH \cong \Delta IFH$



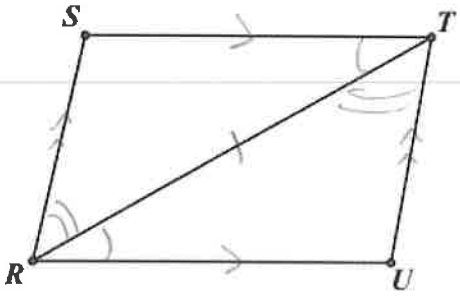
Statements	Reasons
1. $\angle G \cong \angle I$; $\overline{FH}$ bisects ∠GFI	1. Given
2. $\angle GFH \cong \angle IFH$	2. Def. of Angle Bisector
3. $\overline{FH} \cong \overline{FH}$	3. Reflexive Prop.
4. $\Delta GFH \cong \Delta IFH$	4. AAS

4. Given: $\angle N$ and $\angle Q$ are right angles; $\overline{NO} \cong \overline{PQ}$
Prove: $\Delta ONP \cong \Delta PQO$



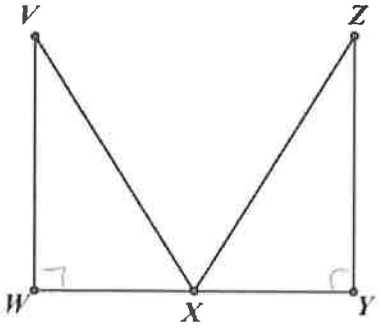
Statements	Reasons
1. $\angle N$ and $\angle Q$ are right angles	1. Given
2. ΔONP and ΔPQO are Right triangles	2. Def. of right triangle
3. $\overline{OP} \cong \overline{OP}$	3. Reflexive Prop.
4. $\overline{NO} \cong \overline{PQ}$	4. Given
5. $\Delta ONP \cong \Delta PQO$	5. HL

5. Given: $\overline{ST} \parallel \overline{RU}$; $\overline{SR} \parallel \overline{TU}$
Prove: $\Delta SRT \cong \Delta UTR$



Statements	Reasons
1. $\overline{ST} \parallel \overline{RU}$	1. Given
2. $\angle STR \cong \angle TRU$	2. If lines ||, alt. int. $\angle$s $\cong$
3. $\overline{SR} \parallel \overline{TU}$	3. Given
4. $\angle SRT \cong \angle UTR$	4. SAT UAT $\angle$s
5. $\overline{RT} \cong \overline{RT}$	5. Reflexive
6. $\Delta SRT \cong \Delta UTR$	6. ASA

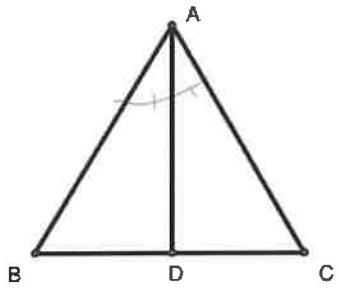
6. Given: $\angle W$ and $\angle Y$ are right angles; $\overline{VX} \cong \overline{ZX}$; X is the midpoint of $\overline{WY}$
Prove: $\Delta VWX \cong \Delta ZYX$



Statements	Reasons
1. $\angle W$ and $\angle Y$ are right angles	1. Given
2. ΔVWX & ΔZYX are $\perp$ Δ	2. Def. of right triangle
3. $\overline{VX} \cong \overline{ZX}$; X is the midpoint of $\overline{WY}$	3. Given
4. $\overline{WX} \cong \overline{XY}$	4. Def. of midpoint
5. $\Delta VWX \cong \Delta ZYX$	5. HL

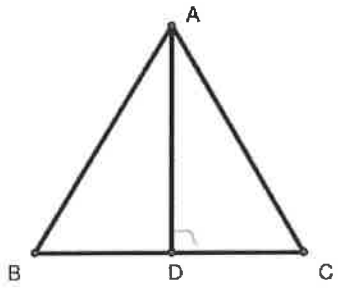
Name _____ Date _____

A. Given: $\overline{AD}$ bisects $\angle CAB$
Prove: $\angle CAD \cong \angle BAD$



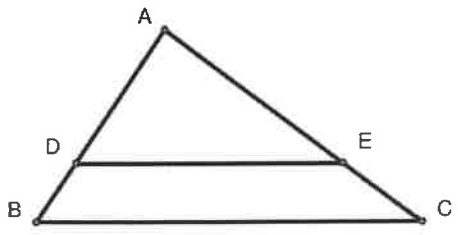
Statement	Reason
$\overline{AD}$ bisects $\angle CAB$	Given
$\angle CAD \cong \angle BAD$	Def of $\angle$ Bisect

B. Given: $\overline{AD} \perp \overline{BC}$
Prove: $\angle ADB \cong \angle ADC$



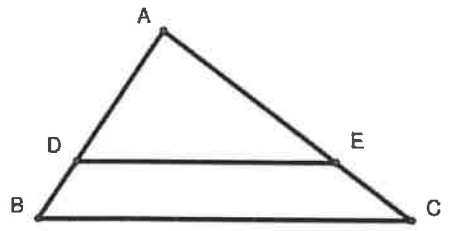
Statement	Reason
$\overline{AD} \perp \overline{BC}$	Given
$\angle ADB$ & $\angle ADC$ are Rt Angles	Def of $\perp$
$\angle ADB = 90$ $\angle ADC = 90$	Def of Rt $\angle$
$\angle ADB = \angle ADC$	Substitution
$\angle ADB \cong \angle ADC$	Def of $\cong$ $\angle$s

C. Given: $\overline{DE}$ // $\overline{BC}$
Prove: $\angle ADE \cong \angle ABC$



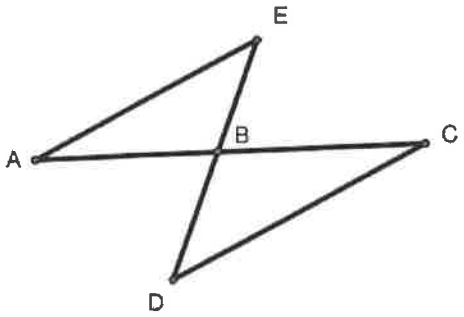
Statement	Reason
$\overline{DE}$ // $\overline{BC}$	Given
$\angle ADE \cong \angle ABC$	// lines, Corresponding Angles

D. Given:
Prove: $\angle A \cong \angle A$



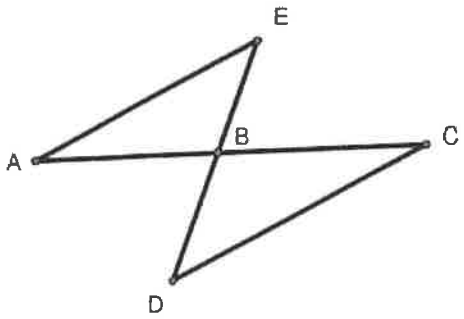
Statement	Reason
$\angle A \cong \angle A$	reflexive

E. Given:
Prove: $\angle ABE \cong \angle CBD$



Statement	Reason
$\angle ABE \cong \angle CBD$	vert $\angle$s

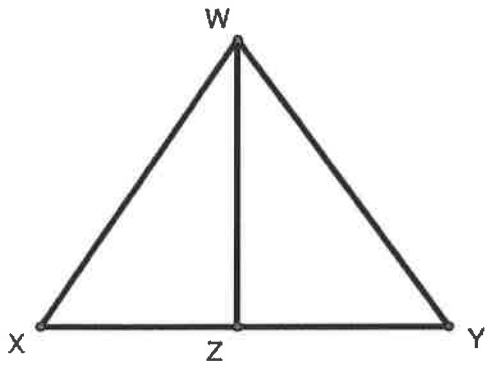
F. Given: $\overline{AE} \,//\, \overline{CD}$
Prove: $\angle E \cong \angle D$



Statement	Reason
$\overline{AE} \,//\, \overline{CD}$	Given
$\angle E \cong \angle D$	AIT

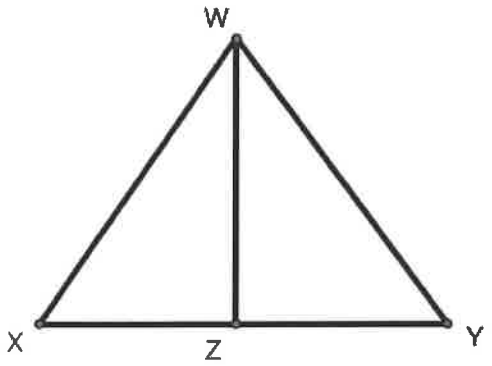
Name _____ Date _____

A. Given: $\overline{ZW}$ bisects $\angle XWY$
Prove: $\angle XWZ \cong \angle YWZ$



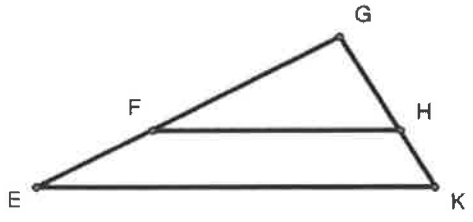
Statement	Reason
ZW Bisects ∠XWY	Given
∠XWZ ≅ ∠YWZ	Def of ∠ Bisector

B. Given: $\overline{WZ} \perp \overline{XY}$
Prove: $\angle XZW \cong \angle YZW$



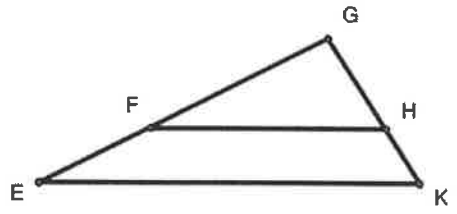
Statement	Reason
WZ ⊥ XY	Given
∠XZW + ∠YZW Are Rt ∠s	Def of ⊥
∠XZW = 90 ∠YZW = 90	Def of Rt ∠
∠XZW = ∠YZW	Substitution
∠YZW ≅ ∠YZW	Def ≅

C. Given: $\overline{FH}$ // $\overline{EK}$
Prove: $\angle GHF \cong \angle GKE$



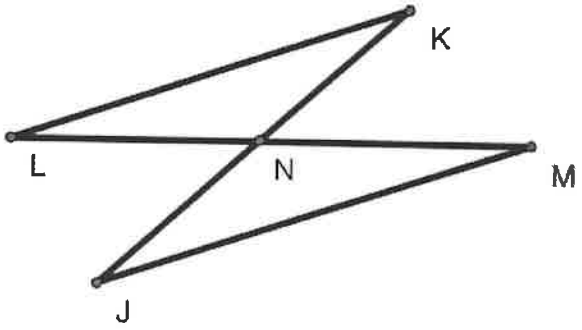
Statement	Reason
FH // EK	Given
∠GHF ≅ ∠GKE	Corresponding ∠s

D. Given:
Prove: $\angle G \cong \angle G$



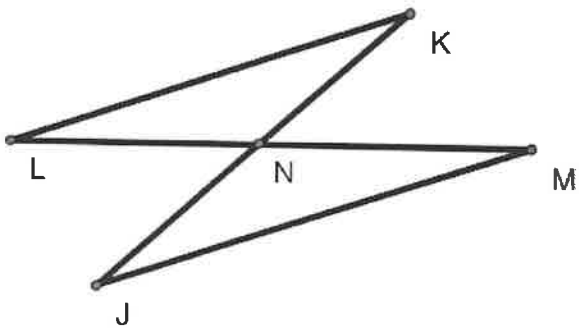
Statement	Reason
$\angle G \cong \angle G$	reflexive

E. Given:
Prove: $\angle LNK \cong \angle MNJ$



Statement	Reason
$\angle LNK \cong \angle MNJ$	Vert $\angle$s

F. Given: $\overline{LK} \,//\, \overline{JM}$
Prove: $\angle K \cong \angle J$



Statement	Reason
$LK \,//\, JM$	Given
$\angle K \cong \angle J$	Alt Int $\angle$s