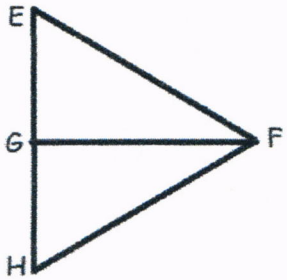
Geometry NAME _____

WS Proofs & Triangle Congruence PERIOD ____

#1 Given: $\overline{FG} \perp \overline{EH}$, $\overline{FE} \cong \overline{FH}$

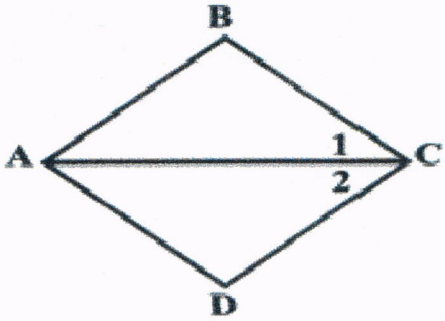
Prove: $\overline{EG} \cong \overline{HG}$



STATEMENT	REASON
1.	1. Given
2. $\angle AMC$, $\angle BMC$ are rt Δ's	2.
3.	3. Reflexive Property
4. $\overline{FE} \cong \overline{FH}$	4.
5. $\Delta AMC \cong \Delta BMC$	5.
6.	6.

#2 Given: $\angle 1 \cong \angle 2$, $\overline{AB} \cong \overline{AD}$

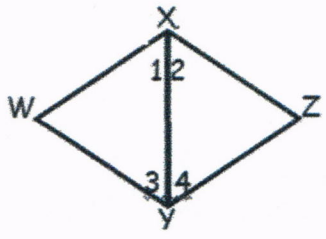
Prove: $\angle B \cong \angle D$



STATEMENT	REASON
1.	1. Given
2. $\overline{AB} \cong \overline{AD}$	2.
3. $\overline{AC} \cong \overline{AC}$	3.
4. $\Delta ABC \cong$ _____	4.
5.	5.

#3 Given: $\angle 1 \cong \angle 4$, $\angle 2 \cong \angle 3$

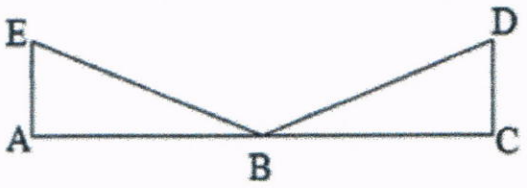
Prove: $\Delta WXY \cong \Delta ZYX$



STATEMENT	REASON
1.	1. Given
2. $\angle 2 \cong \angle 3$	2.
3. $\overline{XY} \cong \overline{YX}$	3.
4.	4.

Given: $\overline{EB} \cong DB$

$\angle A$ and $\angle C$ are right angles, B is the midpoint of $\overline{AC}$

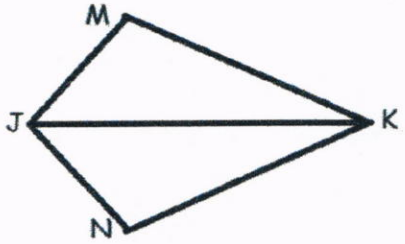


P: $\Delta ABE \cong \Delta CBD$

Statement	Reason
1.	1. Given
2. $\angle A$ and $\angle C$ are right angles	2.
3. ΔABE and ΔCBD are right Δ's	3.
4. B is midpoint of $\overline{AC}$	4.
5. $\overline{AB} \cong \overline{BC}$	5.
6.	6.

Given: $\overline{JM} \cong \overline{JN}$, $\overline{MK} \cong \overline{NK}$

Prove: $\angle M \cong \angle N$

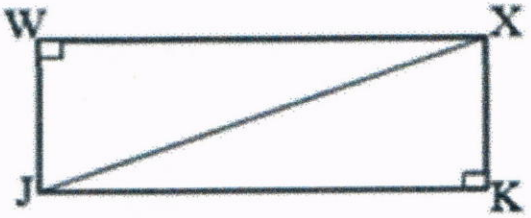


STATEMENT	REASON
1. $\overline{JM} \cong \overline{JN}$, $\overline{MK} \cong \overline{NK}$	1.
2.	2.
3. $\Delta JMK \cong$ _____	3.
4.	4.

G: $\overline{WJ} \cong \overline{KX}$

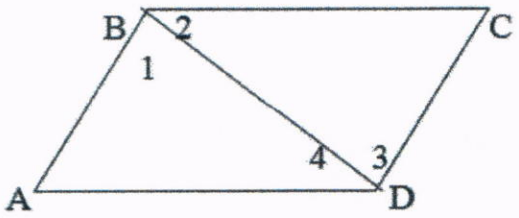
$\angle JWX$ and $\angle XKJ$ are right angles

P: $\Delta JWX \cong \Delta XKJ$



Statement	Reason
1. $\overline{WJ} \cong \overline{KX}$	1.
2.	2. Given
3.	3. def. right Δ
4.	4. Reflexive property
5.	5.

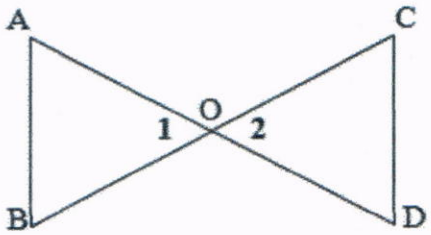
Given: AB // CD
AB ≅ CD
Prove: ΔABD ≅ ΔCDB



	Statement		Reason
1.	AB // CD, AB ≅ CD	1.	Given
2.	_____	2.	_____
3.	_____	3.	_____
4.	ΔABD ≅ ΔCDB	4.	_____

Given: $\angle A \cong \angle D$
O is the midpoint of BC

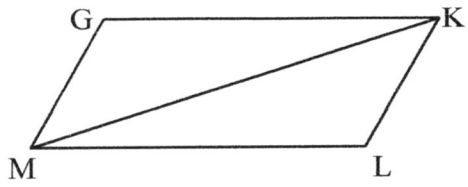
Prove: $\Delta ABO \cong \Delta DCO$



	Statement		Reason
1.	$\angle A \cong \angle D$	1.	
2.		2.	Given
3.		3.	Def. midpoint
4.		4.	
5.		5.	

3. Given: $\overline{GK} \cong \overline{ML}$, $\angle GKM \cong \angle LMK$

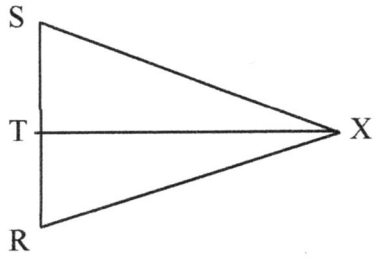
Prove: $\Delta GKM \cong \Delta LMK$



statements	reasons
1. $\overline{GK} \cong \overline{ML}$, $\angle GKM \cong \angle LMK$	1.
2. $\overline{MK} \cong \overline{MK}$	2.
3. $\Delta GKM \cong \Delta LMK$	3.

4. Given: $\angle S \cong \angle R$ and $\overline{XT}$ bisects $\angle SXR$

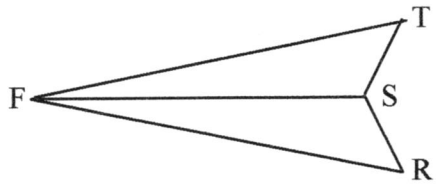
Prove: $\Delta SXT \cong \Delta RXT$



statements	reasons
1. $\angle S \cong \angle R$ and $\overline{XT}$ bisects $\angle SXR$	1.
2. $\angle SXT \cong \angle RXT$	2.
3. $\overline{XT} \cong \overline{XT}$	3.
4. $\Delta SXT \cong \Delta RXT$	4.

5. Given: $\overline{FT} \cong \overline{FR}$ and $\overline{ST} \cong \overline{SR}$

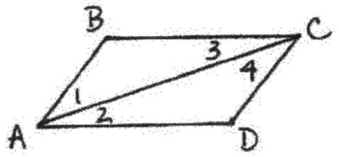
Prove: $\Delta FTS \cong \Delta FRS$



statements	reasons
1. $\overline{FT} \cong \overline{FR}$ and $\overline{ST} \cong \overline{SR}$	1.
2.	2. Reflexive Property
3.	3.

11. Given: $\angle 2 \cong \angle 3, \angle 1 \cong \angle 4$

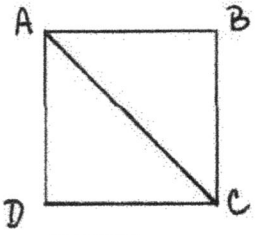
Prove: $\Delta ABC \cong \Delta CDA$



statements	reasons
1. $\angle 2 \cong \angle 3, \angle 1 \cong \angle 4$	1.
2.	2.
3.	3.

12. Given: $\angle D$ and $\angle B$ are right angles, $\overline{AD} \cong \overline{CB}$

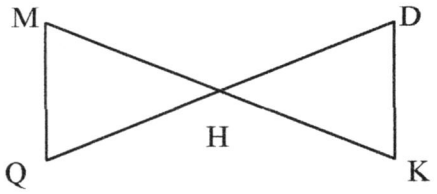
Prove: $\Delta ABC \cong \Delta CDA$



statements	reasons
1. $\angle D$ and $\angle B$ are right angles, $\overline{AD} \cong \overline{CB}$	1.
2. ΔABC and ΔCDA are right triangles	2.
3.	3.
4. $\Delta ABC \cong \Delta CDA$	4.

6. Given: H is the midpoint of $\overline{MK}$ and $\overline{QD}$

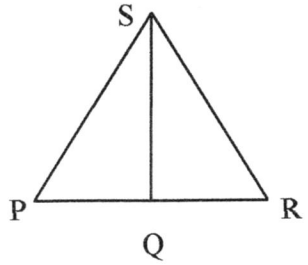
Prove: $\Delta QMH \cong \Delta DKH$



statements	reasons
1.	1. Given
2. $\overline{MH} \cong \overline{KH}$ and $\overline{QH} \cong \overline{DH}$	2.
3. $\angle MHQ \cong \angle KHD$	3.
4.	4.

7. Given: $\overline{SQ}$ bisects $\angle PSR$ and $\angle P \cong \angle R$

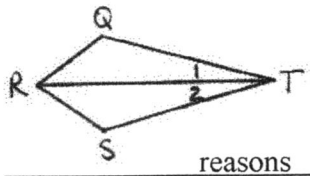
Prove: $\Delta SQP \cong \Delta SQR$



statements	reasons
1. $\overline{SQ}$ bisects $\angle PSR$ and $\angle P \cong \angle R$	1.
2.	2. Definition of bisect
3.	3. Reflexive Property
4. $\Delta SQP \cong \Delta SQR$	4.

8. Given: $\overline{RT}$ bisects $\angle QRS$, $\angle 1 \cong \angle 2$

Prove: $\Delta RTQ \cong \Delta RTS$



statements	reasons
1. $\overline{RT}$ bisects $\angle QRS$, $\angle 1 \cong \angle 2$	1.
2. $\angle QRT \cong \angle SRT$	2.
3. $\overline{RT} \cong \overline{RT}$	3.
4. $\Delta RTQ \cong \Delta RTS$	4.

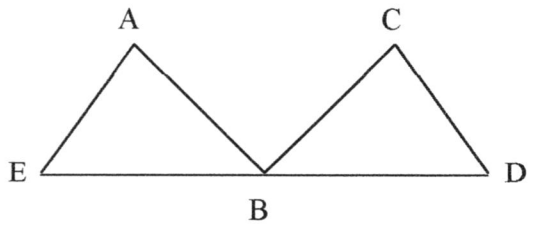
(over)

Geometry Worksheet
Congruent Triangles #3

Name:

Complete the proofs.

1. Given: $\overline{AE} \cong \overline{CB}$, $\overline{AB} \cong \overline{CD}$, and B is the midpoint of $\overline{ED}$

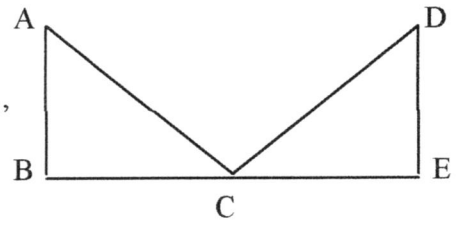


Prove: $\Delta AEB \cong \Delta CBD$

(Hint: Draw the information on the picture as you know it.)

statements	reasons
1. $\overline{AE} \cong \overline{CB}$, $\overline{AB} \cong \overline{CD}$, and B is the midpoint of $\overline{ED}$	1.
2. $\overline{EB} \cong \overline{DB}$	2.
3. $\Delta AEB \cong \Delta CBD$	3.

2. Given: $\overline{AB} \perp \overline{BE}$, $\overline{DE} \perp \overline{BE}$, $\overline{AC} \cong \overline{DC}$, and $\angle BAC \cong \angle EDC$



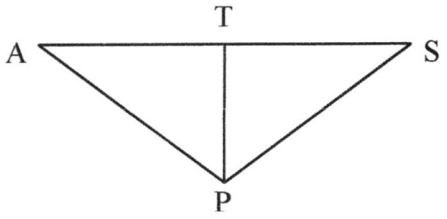
Prove: $\Delta ABC \cong \Delta DEC$

statements	reasons
1. $\overline{AB} \perp \overline{BE}$, $\overline{DE} \perp \overline{BE}$, $\overline{AC} \cong \overline{DC}$, and $\angle BAC \cong \angle EDC$	1.
2. $\angle B$ and $\angle E$ are right angles	2.
3. $\angle B \cong \angle E$	3.
4. $\Delta ABC \cong \Delta DEC$	4.

(over)

9. Given: $\overline{TP} \perp \overline{AS}$, $\overline{AP} \cong \overline{SP}$

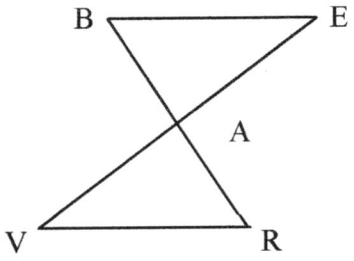
Prove: $\Delta ATP \cong \Delta STP$



statements	reasons
1. $\overline{TP} \perp \overline{AS}$, $\overline{AP} \cong \overline{SP}$	1.
2. <ATP and <STP are right angles	2.
3. ΔATP and ΔSTP are right triangles	3.
4. $\overline{TP} \cong \overline{TP}$	4.
5. $\Delta ATP \cong \Delta STP$	5.

10. Given: $\overline{BR}$ and $\overline{EV}$ bisect each other

Prove: $\Delta BAE \cong \Delta RAV$



statements	reasons
1.	1. Given
2. $\overline{BA} \cong \overline{RA}$ and $\overline{EA} \cong \overline{VA}$	2.
3. <BAE ≅ <RAV	3.
4. $\Delta BAE \cong \Delta RAV$	4.