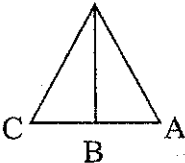
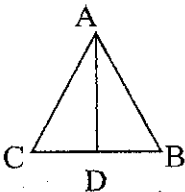
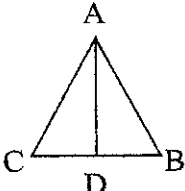
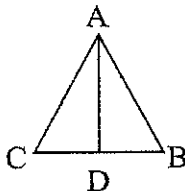
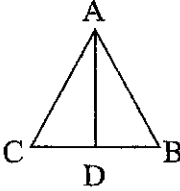
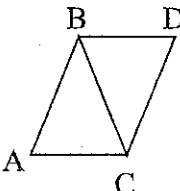
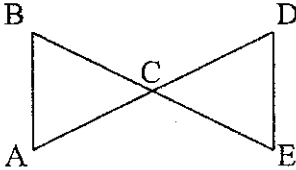
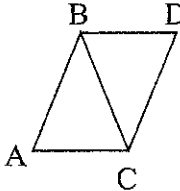


Proof Helpers

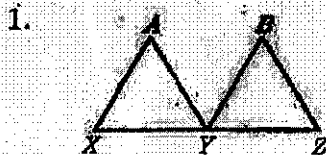
* If - Given	Then - Statement	Reason
<p>Midpoint ** B is the midpoint of \overline{AC}</p> 		
<p>Segment Bisector ** \overline{AD} bisects \overline{BC}</p> 		
<p>Angle Bisector ** \overline{AD} bisects $\angle BAC$</p> 		
<p>Perpendicular Lines ** $\overline{AD} \perp \overline{BC}$</p> 		

<p>Right Angles ** $\angle CDA$ and $\angle BDA$ are rt. \angles</p> 		
<p>Parallel Lines ** $\overline{AB} \parallel \overline{CD}$</p> 		
<p>Vertical Angles **</p> 		
<p>Shared Side **</p> 		

Other things to remember:

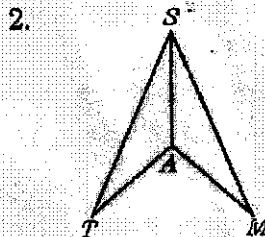
1. Must have 3 congruence statements to prove triangles congruent.
 (Except HL – 2 congruence statements and right triangles)
2. Congruence statement (SSS, SAS, ASA, AAS, HL) must come before CPCTC.

For the following problems, complete the triangle congruence statement, and name the postulate that justifies the statement.



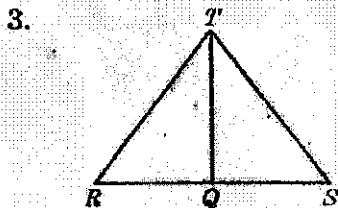
Y is the midpoint of \overline{XZ} , $\overline{AY} \cong \overline{BY}$,
and $\angle AYX \cong \angle BYZ$.

$\triangle XYA \cong$ ___ by ___.



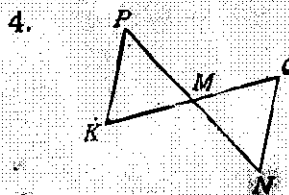
\overline{SA} is the angle bisector of $\angle TSM$ and
 $\overline{ST} \cong \overline{SM}$.

$\triangle SAT \cong$ ___ by ___.



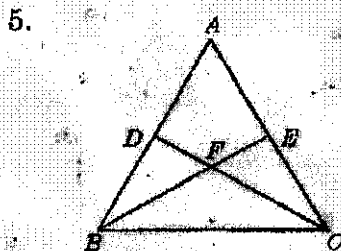
$\triangle RTS$ is isosceles with legs \overline{RT}
and \overline{TS} . Q is the midpoint of \overline{RS} .

$\triangle RTQ \cong$ ___ by ___.



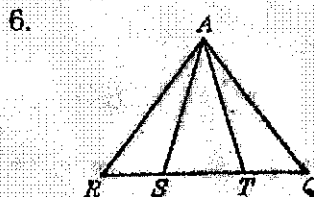
$\angle P \cong \angle N$, and M is the midpoint
of \overline{PN} .

$\triangle PMK \cong$ ___ by ___.



$\triangle ABC$ is an isosceles triangle with legs
 \overline{AB} and \overline{AC} and $\overline{AD} \cong \overline{AE}$.

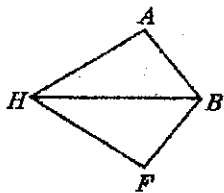
$\triangle DCB \cong$ ___ by ___.



$\triangle RAQ$ is isosceles with legs \overline{AR}
and \overline{AQ} , and $\overline{RT} \cong \overline{QT}$.

$\triangle RAT \cong$ ___ by ___.

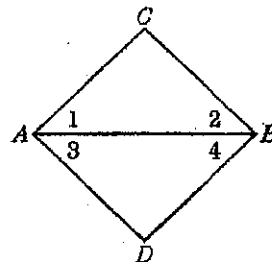
7.



$\overline{HA} \cong \overline{HF}$ and $\overline{AB} \cong \overline{FB}$.

$\triangle AHB \cong$ ___ by ___.

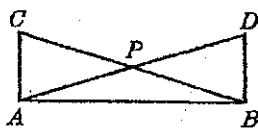
8.



$\overline{AC} \cong \overline{BD}$ and $\overline{AD} \cong \overline{BC}$.

$\triangle ABD \cong$ ___ by ___.

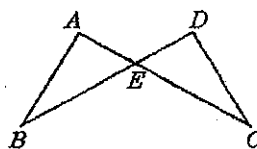
9.



$\overline{CA} \cong \overline{DB}$ and $\overline{CB} \cong \overline{DA}$.

$\triangle CBA \cong$ ___ by ___.

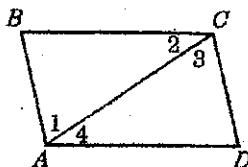
10.



$\overline{BE} \cong \overline{CE}$ and $\overline{AE} \cong \overline{DE}$.

$\triangle ABE \cong$ ___ by ___.

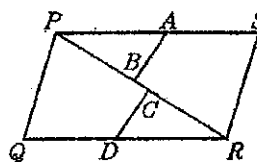
11.



$\angle 2 \cong \angle 4$ and $\overline{BC} \cong \overline{AD}$.

$\triangle BAC \cong$ ___ by ___.

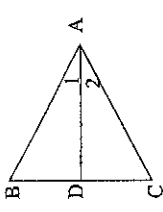
12.



$\overline{AB} \parallel \overline{CD}$, $\overline{PB} \cong \overline{CR}$, and $\overline{PS} \parallel \overline{QR}$.

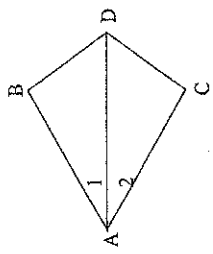
$\triangle PAB \cong$ ___ by ___.

1. Given: $\overline{AB} \cong \overline{AC}$
 $\angle 1 \cong \angle 2$
 Prove: $\triangle ABD \cong \triangle ACD$



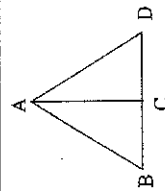
1. $\overline{AB} \cong \overline{AC}$
2. $\angle 1 \cong \angle 2$
3. $\overline{AD} \cong \overline{AD}$
4. $\triangle ABD \cong \triangle ACD$

2. Given: \overline{AD} bisects $\angle BAC$
 $\overline{AB} \cong \overline{AC}$
 Prove: $\triangle ABD \cong \triangle ACD$



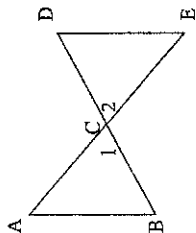
1. $\overline{AB} \cong \overline{AC}$
2. \overline{AD} bisects $\angle BAC$
3. $\angle 1 \cong \angle 2$
4. $\overline{AD} \cong \overline{AD}$
5. $\triangle ABD \cong \triangle ACD$

3. Given: $\overline{AB} \cong \overline{AD}$
 C is the midpoint of \overline{BD}
 Prove: $\triangle ABC \cong \triangle ADC$



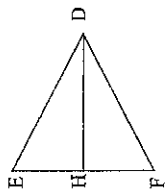
1. $\overline{AB} \cong \overline{AD}$
2. C is the midpoint of \overline{BD}
3. $\overline{BC} \cong \overline{DC}$
4. Reflexive Prop.
5. $\triangle ABC \cong \triangle ADC$

4. Given: \overline{AE} bisects \overline{BD}
 $\overline{AC} \cong \overline{EC}$
 Prove: $\triangle ABC \cong \triangle EDC$



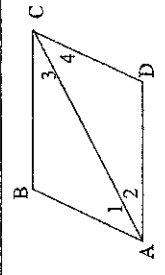
1. \overline{AE} bisects \overline{BD}
2. $\overline{BC} \cong \overline{DC}$
3. $\angle 1 \cong \angle 2$
4. _____
5. $\triangle ABC \cong \triangle EDC$

5. Given: $\overline{DE} \cong \overline{DF}$
 \overline{DH} bisects \overline{EF}
 Prove: $\triangle DHE \cong \triangle DHF$



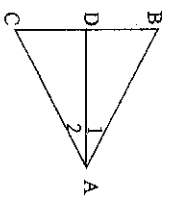
1. _____
2. _____
3. _____
4. _____
5. _____

6. Given: $\overline{AB} \cong \overline{CD}$
 $\angle 1 \cong \angle 4$
 Prove: $\triangle ABC \cong \triangle CDA$



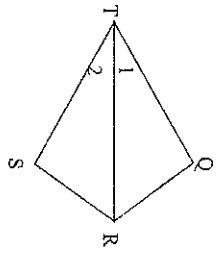
1. _____
2. _____
3. _____
4. _____

1. Given: $\overline{AD} \cong \overline{AD}$
 $\angle 1 \cong \angle 2$
 Prove: $\triangle ABD \cong \triangle ACD$



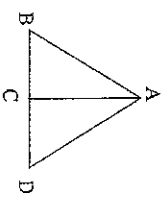
	1.
	2.
	3.
	4.

2. Given: \overline{RT} bisects $\angle QRS$
 $\angle 1 \cong \angle 2$
 Prove: $\triangle RTQ \cong \triangle RTS$



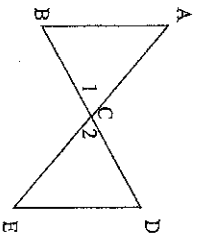
	1.
	2.
	3.
	4.
	5.

3. Given: \overline{AC} bisects $\angle BAD$
 $\angle B \cong \angle D$
 Prove: $\triangle ABC \cong \triangle ADC$



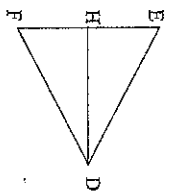
	1.
	2.
	3.
	4.
	5.

4. Given: \overline{AE} bisects \overline{BD}
 $\angle A \cong \angle E$
 Prove: $\triangle ABC \cong \triangle EDC$



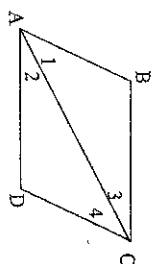
	1.
	2.
	3.
	4.
	5.

5. Given: $\overline{DH} \perp \overline{EF}$
 \overline{DH} bisects $\angle EDF$
 Prove: $\triangle DHE \cong \triangle DHF$



	1.
	2.
	3.
	4.
	5.
	6.
	7.

6. Given: $\overline{AD} \parallel \overline{BC}$
 $\angle 1 \cong \angle 4$
 Prove: $\triangle ABC \cong \triangle CDA$

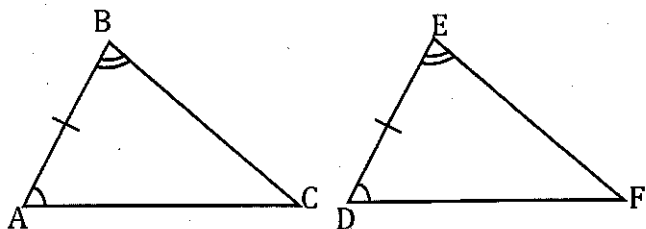


	1.
	2.
	3.
	4.
	5.

For these fill in any missing statements or reasons.

1.

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

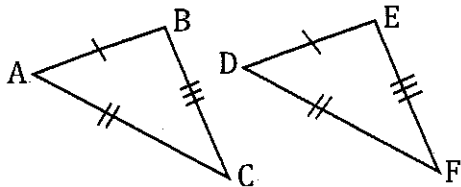


Prove: $\triangle ABC \cong \triangle DEF$

Statements	Reasons
1. $\overline{AB} \cong \overline{DE}$	1. Given
2.	2. Given
3. $\angle A \cong \angle D$	3.
4. $\triangle ABC \cong \triangle DEF$	4.

3.

Given: $\overline{AB} \cong \overline{DE}$, $\overline{AC} \cong \overline{DF}$, and $\overline{BC} \cong \overline{EF}$

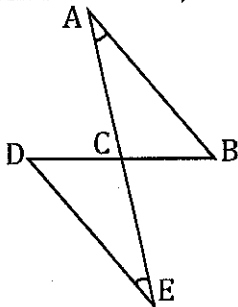


Prove: $\triangle ABC \cong \triangle DEF$

Statements	Reasons
1. $\overline{AB} \cong \overline{DE}$	1.
2.	2.
3.	3.
4.	4. SSS

5.

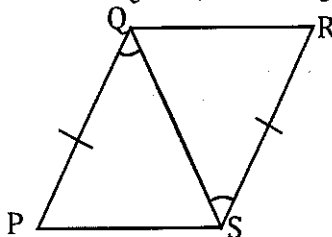
Given: \overline{AE} bisects \overline{BD} , $\angle A \cong \angle E$



Prove: $\triangle ABC \cong \triangle EDC$

Statements	Reasons
1. $\angle A \cong \angle E$	1.
2.	2. Given
3.	3. Definition of Bisect
4. $\angle ACB \cong \angle DCE$	4.
5. $\triangle ABC \cong \triangle EDC$	5.

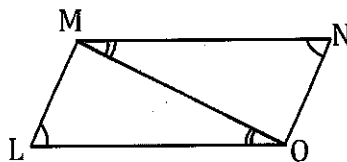
2. Given: $\overline{PQ} \cong \overline{RS}$, and $\angle PQS \cong \angle RSQ$



Prove: $\triangle PQS \cong \triangle RSQ$

Statements	Reasons
1.	1. Given
2.	2. Given
3. $\overline{QS} \cong \overline{QS}$	3.
4. $\triangle PQS \cong \triangle RSQ$	4.

4. Given: $\angle L \cong \angle N$, $\angle LOM \cong \angle NMO$

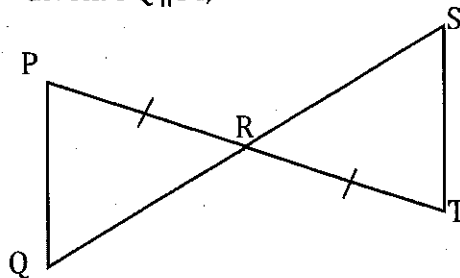


Prove: $\triangle LMO \cong \triangle NOM$

Statements	Reasons
1.	1.
2.	2. Given
3.	3. Reflexive Property
4. $\triangle LMO \cong \triangle NOM$	4.

6.

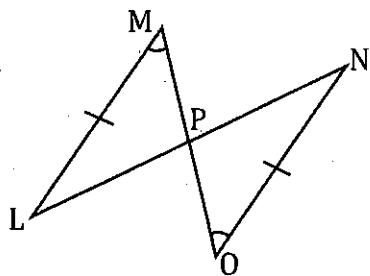
Given: $\overline{PQ} \parallel \overline{ST}$, $\overline{PR} \cong \overline{TR}$



Prove: $\triangle PQR \cong \triangle TSR$

Statements	Reasons
1. $\overline{PR} \cong \overline{TR}$	1.
2.	2. Given
3. $\angle P \cong \angle T$	3.
4. $\angle ACB \cong \angle DCE$	4.

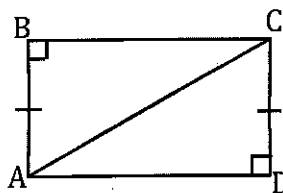
7. Given: $\overline{LM} \cong \overline{NO}$, and $\angle M \cong \angle O$



Prove: $\triangle MPL \cong \triangle NPO$

Statements	Reasons
1. $\overline{LM} \cong \overline{NO}$	1.
2.	2. Given
3.	3.
4.	4. AAS

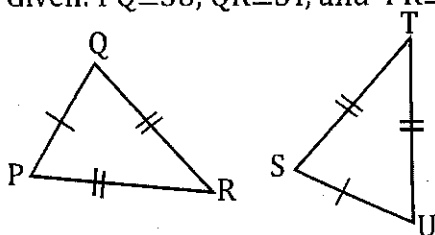
8. Given: $\overline{AB} \cong \overline{DC}$



Prove: $\triangle ABC \cong \triangle CDA$

Statements	Reasons
1.	1. Given
2. $\overline{AC} \cong \overline{AC}$	2.
3. $\triangle ABC \cong \triangle CDA$	3.

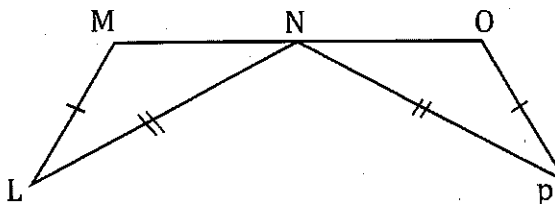
9. Given: $\overline{PQ} \cong \overline{SU}$, $\overline{QR} \cong \overline{ST}$, and $\overline{PR} \cong \overline{TU}$



Prove: $\triangle PQR \cong \triangle STU$

Statements	Reasons
1.	1. Given
2.	2. Given
3.	3.
4. $\triangle PQR \cong \triangle STU$	4.

10. Given: N is the midpoint of \overline{MO} , $\overline{LM} \cong \overline{OP}$, and $\overline{LN} \cong \overline{PN}$

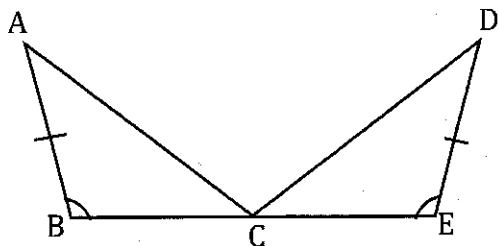


Prove: $\triangle LMN \cong \triangle PON$

Statements	Reasons
1. $\overline{LM} \cong \overline{OP}$	1. Given
2. $\overline{LN} \cong \overline{PN}$	2.
3. N is the Midpoint of \overline{MO}	3. Given
4.	4. Midpoint
5.	5. SSS

11.

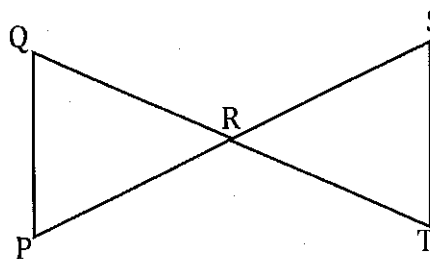
Given: C is the midpoint of \overline{BE} , $\angle B \cong \angle E$, and $\overline{AB} \cong \overline{DE}$



Prove: $\triangle ABC \cong \triangle DEC$

Statements	Reasons
1. $\angle B \cong \angle E$	1.
2. $\overline{AB} \cong \overline{DE}$	2.
3.	3. Given
4.	4. Midpoint
5. $\triangle ABC \cong \triangle DEC$	5. SAS

12. Given: \overline{QT} bisects \overline{SP} , \overline{SP} bisects \overline{QT}



Prove: $\triangle QRP \cong \triangle SRT$

Statements	Reasons
1. \overline{QT} bisects \overline{SP}	1. Given
2.	2. Given
3. $\overline{QR} \cong \overline{TR}$	3. Definition of Bisect
4. $\overline{PR} \cong \overline{SR}$	4.
5.	5. Vertical Angles