

Name: KEY  
CC Geometry

Date: \_\_\_\_\_

### Review for Triangle Proofs Quiz

In 1 – 9, each figure shows two triangles and congruent parts have been marked. Identify the postulate (SSS, SAS, ASA, AAS or HL) that can be used to prove that the triangles are congruent, or write “can’t be done”.

1.



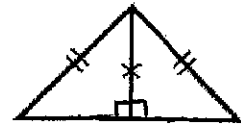
Can't be done

2.



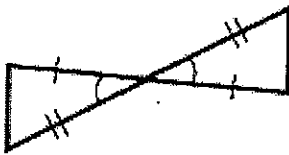
ASA

3.



HL

4.



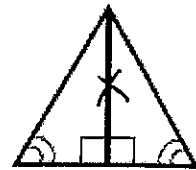
SAS

5.



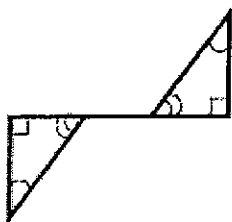
AAS

6.



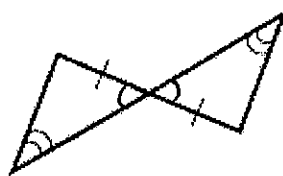
AAS

7.



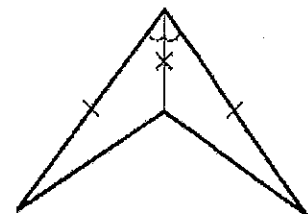
Can't be done

8.



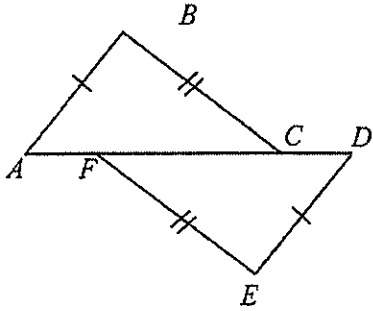
AAS

9.



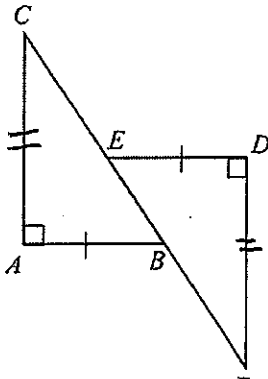
SAS

10. Name the sides that would have to be congruent to use the SSS congruence postulate.



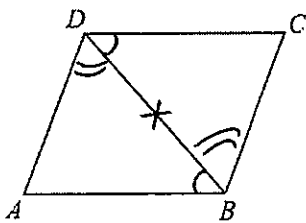
$$\overline{AC} \cong \overline{DF}$$

11. Name the sides that would have to be congruent to use the SAS congruence postulate.



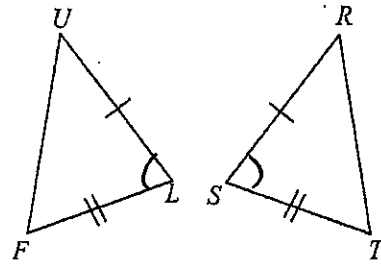
$$\overline{AC} \cong \overline{DF}$$

12. Name the angles that would have to be congruent to use the ASA congruence postulate.



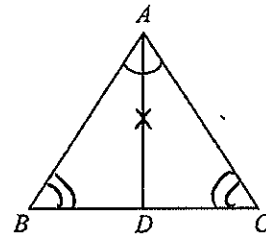
$$\angle ADB \cong \angle CBD$$

13. Name the angles that would have to be congruent to use the SAS congruence postulate.



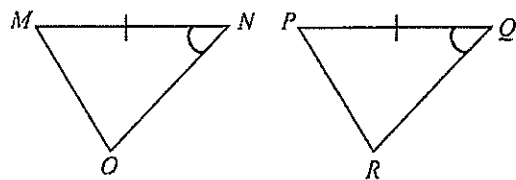
$$\angle L \cong \angle S$$

14. Name the angles that would have to be congruent to use the AAS congruence postulate.



$$\angle B \cong \angle C$$

15. Name the sides that would have to be congruent to use the SAS congruence postulate.

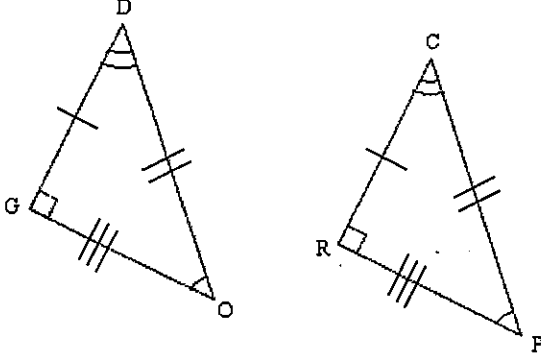


$$\overline{NO} \cong \overline{OR}$$

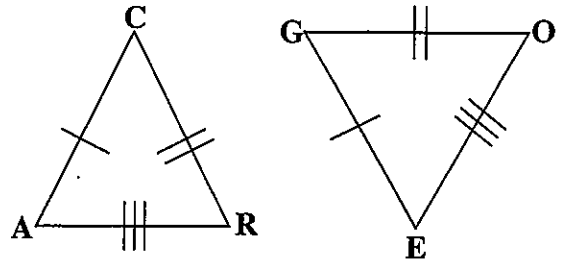
## Triangle Congruence

Name the congruent triangles.

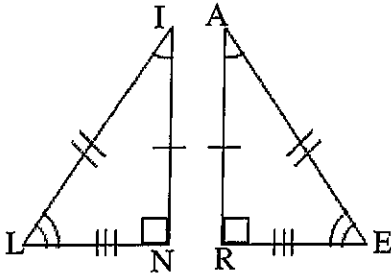
16.  $\triangle OGD \cong \triangle PRC$



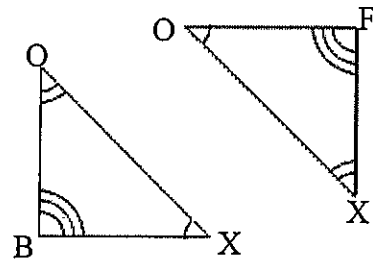
17.  $\triangle RAC \cong \triangle OEG$



18.  $\triangle LIN \cong \triangle EAR$

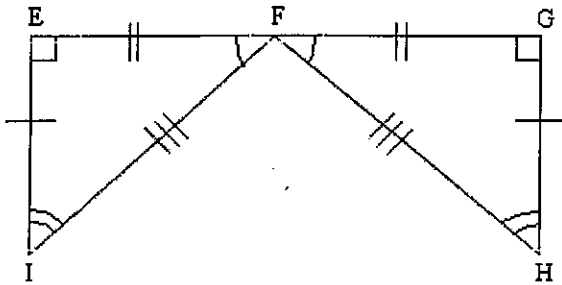


19.  $\triangle FOX \cong \triangle BXO$



II. Name the congruent triangle and the congruent parts..

20.



$\triangle FGH \cong \triangle FEI$

$\angle EFI \cong \angle GFH$

$\overline{FG} \cong \overline{FE}$

$\angle G \cong \angle E$

$\overline{GH} \cong \overline{EI}$

$\angle H \cong \angle I$

$\overline{FH} \cong \overline{FI}$

Use the congruency statement to fill in the corresponding congruent parts.

21.  $\triangle EFI \cong \triangle HGI$

$\angle E \cong \angle H$

$\overline{FE} \cong \overline{GH}$

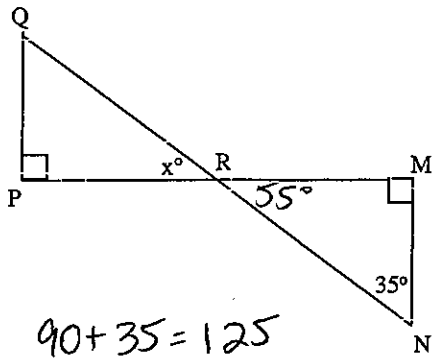
$\angle EFI \cong \angle HGI$

$\overline{FI} \cong \overline{GI}$

$\angle FIE \cong \angle GIH$

$\overline{IE} \cong \overline{IH}$

22.  $\triangle PQR \cong \triangle MNR$ . Find  $x$ .

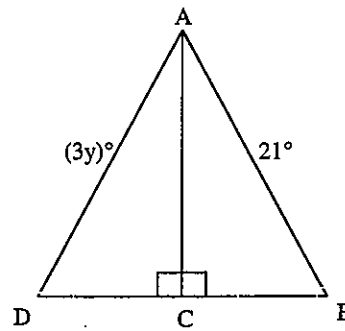


$$90 + 35 = 125$$

$$180 - 125 = 55^\circ$$

$$\boxed{x = 55^\circ}$$

23.  $\triangle ABC \cong \triangle ADC$ . Find  $y$ .



$$\frac{3y}{3} = \frac{21}{3}$$

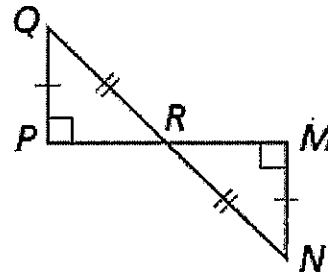
$$\boxed{y = 7}$$

### Proving Triangles Congruent

24. Given:  $\angle P$  and  $\angle M$  are right angles.

$$\overline{PQ} \cong \overline{MN}, \overline{QR} \cong \overline{NR}$$

Prove:  $\triangle PQR \cong \triangle MNR$



HL

①  $\angle P$  and  $\angle M$  are right angles  
 $\overline{PQ} \cong \overline{MN}, \overline{QR} \cong \overline{NR}$

① Given

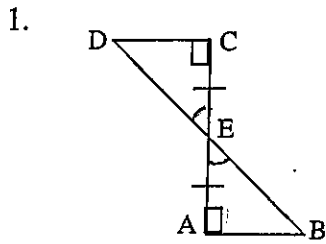
②  $\triangle PQR$  and  $\triangle MNR$  are right  $\triangle$ 's

② A right  $\triangle$  has one right angle

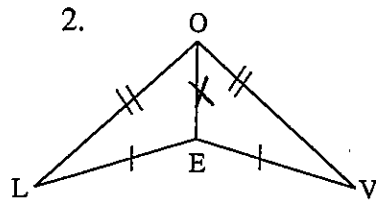
③  $\triangle PQR \cong \triangle MNR$

③ HL

II. For each pair of triangles, tell: (a) Are they congruent? (b) Write the triangle congruency statement. (c) Give the postulate that makes them congruent.

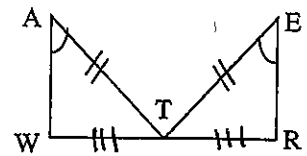


- a. Yes  
 b.  $\triangle CED \cong \triangle EAB$   
 c. ASA

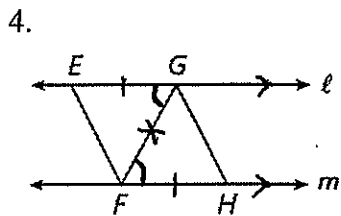


- a. Yes  
 b.  $\triangle OLE \cong \triangle OVE$   
 c. SSS

3. Given: T is the midpoint of  $\overline{WR}$

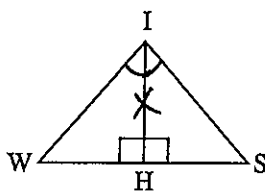


- a. NO!  
 b.  ~~$\triangle \cong \triangle$~~   
 c. ~~\_\_\_\_\_~~

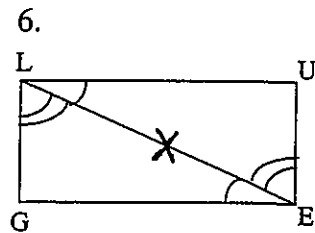


- a. Yes  
 b.  $\triangle EGF \cong \triangle HFG$   
 c. SAS

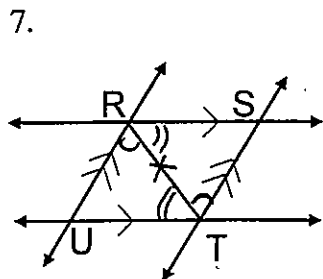
5. Given:  $\overrightarrow{IH}$  bisects  $\angle WIS$



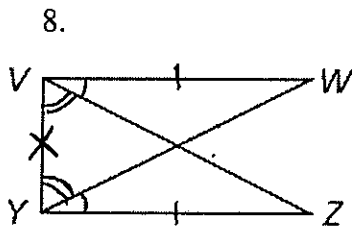
- a. Yes  
 b.  $\triangle WIH \cong \triangle SIH$   
 c. ASA



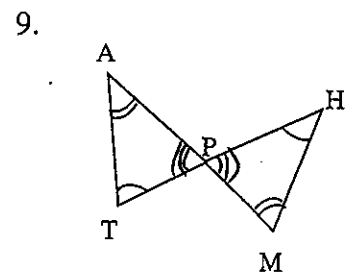
- a. Yes  
 b.  $\triangle LEG \cong \triangle ULU$   
 c. ASA



- a. Yes  
 b.  $\triangle RUT \cong \triangle TSR$   
 c. ASA

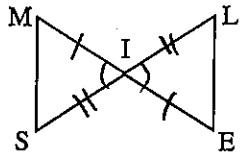


- a. Yes  
 b.  $\triangle WVY \cong \triangle ZYV$   
 c. SAS



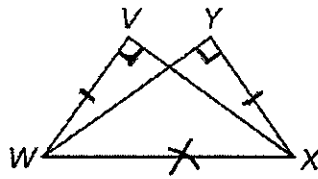
- a. NO!  
 b.  ~~$\triangle \cong \triangle$~~   
 c. ~~\_\_\_\_\_~~

10. Given: I is the midpoint of  $\overline{ME}$  and  $\overline{SL}$



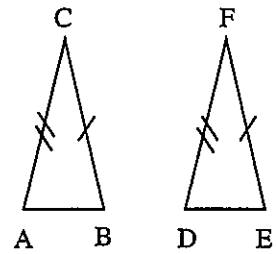
- a. Yes  
 b.  $\triangle MIS \cong \triangle EIL$   
 c. SAS

11.



- a. Yes  
 b.  $\triangle VWX \cong \triangle YXW$   
 c. HL

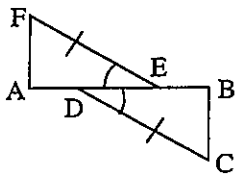
12.



- a. NO!  
 b.  ~~$\triangle \cong \triangle$~~   
 c. ~~\_\_\_\_\_~~

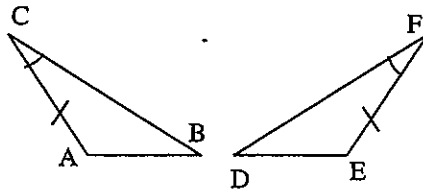
III. Using the given postulate, tell which parts of the pair of triangles should be shown congruent.

1. SAS



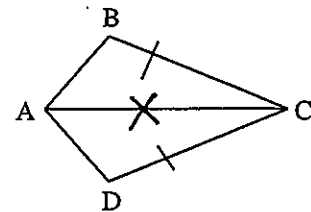
$\overline{AE} \cong \overline{BE}$

2. ASA



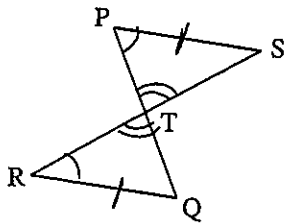
$\angle A \cong \angle E$

3. SSS



$\overline{AB} \cong \overline{AD}$

4. AAS

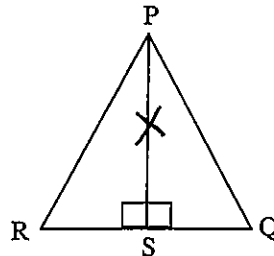


$\overline{RQ} \cong \overline{SP}$

OR

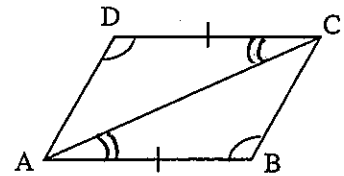
$\overline{QT} \cong \overline{ST}$

5. HL



$\overline{RP} \cong \overline{QP}$

6. ASA



$\angle DCA \cong \angle BAC$

①	Statements	Reasons
	1) $\overline{AD} \parallel \overline{BC}, \overline{AD} \cong \overline{CB}$	1) Given
	2) $\angle DAC \cong \angle BCA$	2) When lines are $\parallel$ , alt. int $\angle$ 's are $\cong$
	3) $\angle AED \cong \angle CEB$	3) Vertical $\angle$ 's are $\cong$
	4) $\triangle AED \cong \triangle CEB$	4) AAS

④	Statements	Reasons
	1) $\overline{JK} \cong \overline{ML}, \angle JKL \cong \angle MLK$	1) Given
	2) $\overline{KL} \cong \overline{KL}$	2) Reflexive prop.
	3) $\triangle JKL \cong \triangle MLK$	3) SAS

②	Statements	Reasons
	1) $\overline{KM} \perp \overline{JL}, \overline{JM} \cong \overline{LM}, \angle JMK \cong \angle LMK$	1) Given
	2) $\angle JKM$ and $\angle LKM$ are right angles	2) $\perp$ lines form right angles
	3) $\angle JKM \cong \angle LKM$	3) All right $\angle$ 's are $\cong$
	4) $\triangle JKM \cong \triangle LKM$	4) AAS

⑤	Statements	Reasons
	1) B is midpoint of $\overline{DC}, \overline{AB} \perp \overline{DC}$	1) Given
	2) $\overline{DB} \cong \overline{CB}$	2) A midpoint creates 2 $\cong$ segments
	3) $\angle ABD$ and $\angle ABC$ are right $\angle$ 's	3) $\perp$ lines form right angles
	4) $\angle ABD \cong \angle ABC$	4) All right $\angle$ 's are $\cong$
	5) $\overline{AB} \cong \overline{AB}$	5) Reflexive prop.
	6) $\triangle ABD \cong \triangle ABC$	6) SAS

③	Statements	Reasons
	1) $\overline{AB} \cong \overline{DE}, \angle C \cong \angle F, \angle A$ and $\angle D$ are right $\angle$ 's	1) Given
	2) $\angle A \cong \angle D$	2) All right $\angle$ 's are congruent
	3) $\triangle ABC \cong \triangle DEF$	3) AAS

⑥	Statements	Reasons
	1) $\angle R$ and $\angle P$ are right $\angle$ 's, $\overline{QR} \parallel \overline{SP}$	1) Given
	2) $\angle R \cong \angle P$	2) All right $\angle$ 's are $\cong$
	3) $\angle RQS \cong \angle PSQ$	3) When lines are $\parallel$ , alt. int $\angle$ 's are $\cong$
	4) $\overline{QS} \cong \overline{QS}$	4) Reflexive prop.
	5) $\triangle QPS \cong \triangle SRQ$	5) AAS

⑦

Statements	Reasons
1) G is midpoint of $\overline{FH}$ $\overline{EF} \cong \overline{EH}$	1) Given
2) $\overline{FG} \cong \overline{HG}$	2) A midpoint creates 2 $\cong$ segments
3) $\overline{EG} \cong \overline{EG}$	3) Reflexive prop.
4) $\triangle EFG \cong \triangle EHG$	4) SSS
5) $\angle 1 \cong \angle 2$	5) CPCTC

⑩

Statements	Reasons
1) $\overline{WX} \cong \overline{XY} \cong \overline{YZ} \cong \overline{ZW}$	1) Given
2) $\overline{XZ} \cong \overline{XZ}$	2) Reflexive prop.
3) $\triangle WXZ \cong \triangle YZX$	3) SSS
4) $\angle W \cong \angle Y$	4) CPCTC

⑧

Statements	Reasons
1) $\overline{LM}$ bisects $\angle JLK$ , $\overline{JL} \cong \overline{KL}$	1) Given
2) $\angle JLM \cong \angle KLM$	2) Angle bisector creates 2 $\cong$ $\angle$ 's
3) $\overline{LM} \cong \overline{LM}$	3) Reflexive prop.
4) $\triangle JLM \cong \triangle KLM$	4) SAS
5) $\overline{JM} \cong \overline{KM}$	5) CPCTC
6) M is midpoint of $\overline{JK}$	6) Midpoint creates 2 $\cong$ segments

⑪

Statements	Reasons
1) M is midpoint of $\overline{PQ}$ and $\overline{RS}$	1) Given
2) $\overline{PM} \cong \overline{QM}$ , $\overline{SM} \cong \overline{RM}$	2) Midpoint creates 2 $\cong$ segments
3) $\angle PMS \cong \angle QMR$	3) Vertical $\angle$ 's are $\cong$
4) $\triangle PMS \cong \triangle QMR$	4) SAS
5) $\overline{QR} \cong \overline{PS}$	5) CPCTC

⑨

Statements	Reasons
1) $\overline{AC} \cong \overline{AD}$ , $\overline{CB} \cong \overline{DB}$	1) Given
2) $\overline{AB} \cong \overline{AB}$	2) Reflexive prop.
3) $\triangle ABC \cong \triangle ABD$	3) SSS
4) $\angle CAB \cong \angle DAB$	4) CPCTC
5) $\overline{AB}$ bisects $\angle CAD$	5) Angle bisector creates 2 $\cong$ $\angle$ 's