Name: KEY _____ Date: _____

CC Geometry

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".

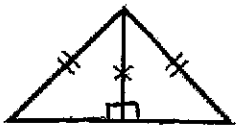
1.

Can't be done

2.

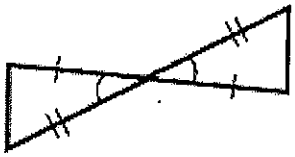
ASA

3.



HL

4.

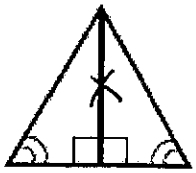


SAS

5.

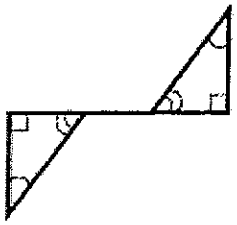
AAS

6.



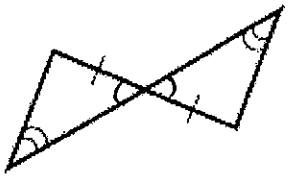
AAS

7.



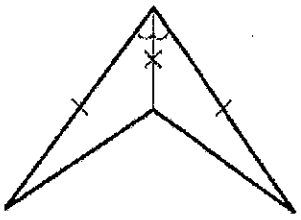
Can't be done

8.



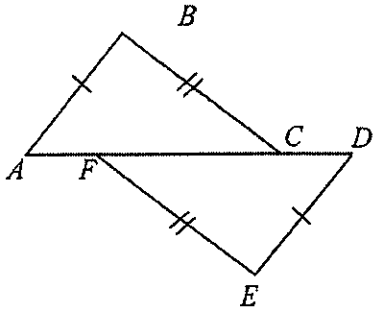
AAS

9.



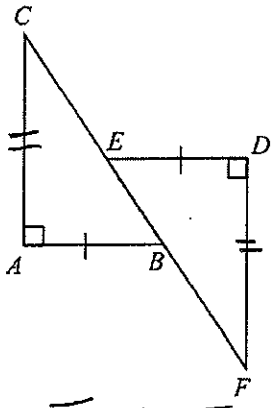
SAS

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



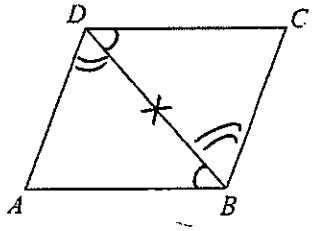
$\overline{AC} \cong \overline{DF}$

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



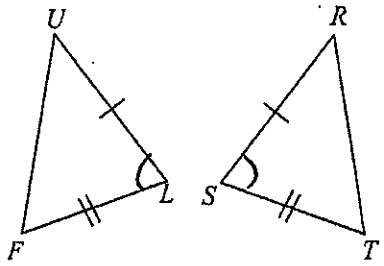
$\overline{AC} \cong \overline{DF}$

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



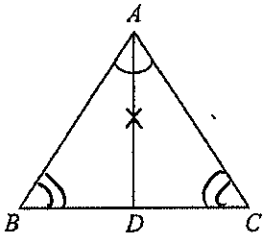
$\angle ADB \cong \angle CBD$

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



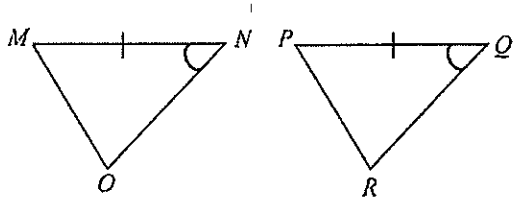
$\angle L \cong \angle S$

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.

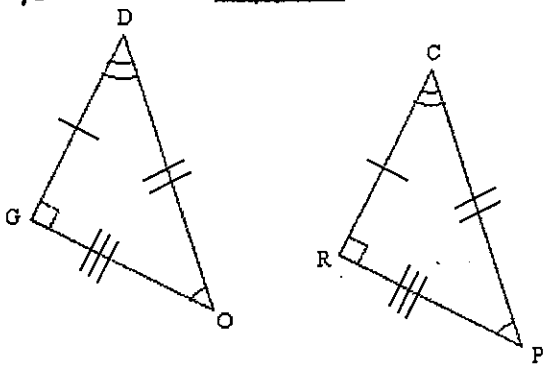


$\overline{NO} \cong \overline{QR}$

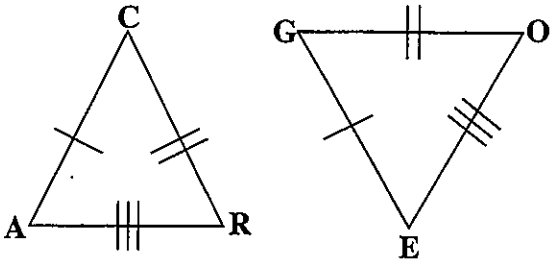
Triangle Congruence

Name the congruent triangles.

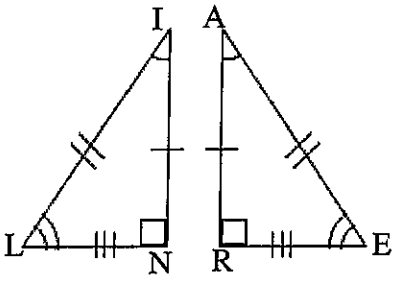
16. $\triangle OGD \cong \triangle$ PRC



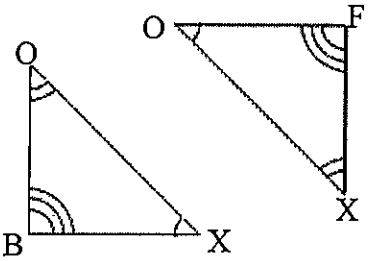
17. $\triangle RAC \cong \triangle$ OEG



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

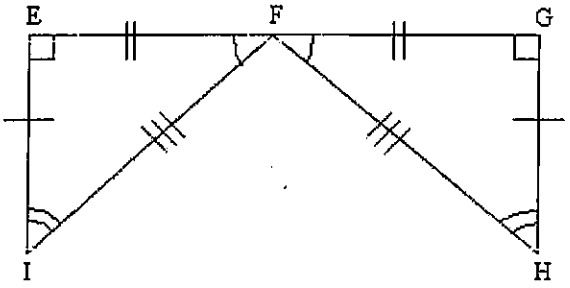


19. $\triangle FOX \cong \triangle$ BXO



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

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

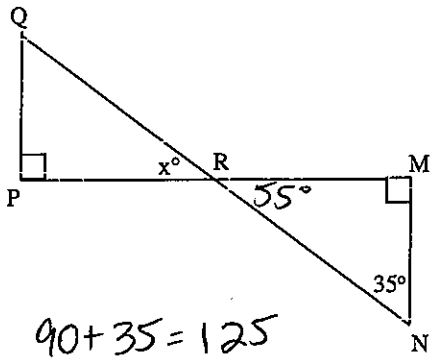
$\angle EFI \cong \angle$ HGI

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

$\angle FIE \cong \angle$ GIH

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

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

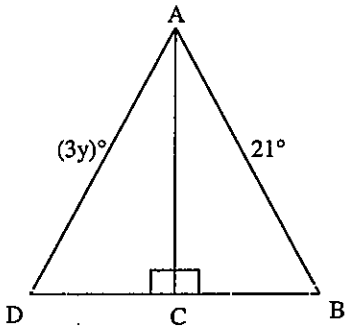


90+35=125

180-125=55°

$x = 55°$

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



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

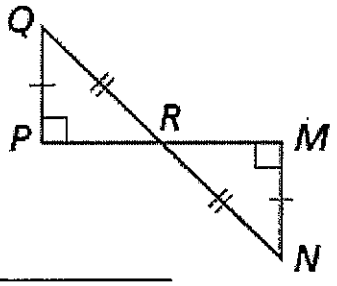
$y = 7$

Proving Triangles Congruent

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

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

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

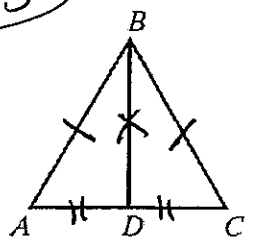


HL

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

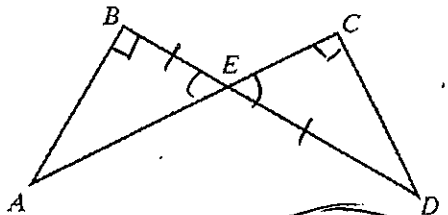
SSS

25. *Given:* $\triangle ABC$ is isosceles with vertex B. D is the midpoint of $\overline{AC}$.
Prove: $\triangle ABD \cong \triangle CBD$



Statements	Reasons
① $\triangle ABC$ is isosceles with vertex B, D is midpoint of $\overline{AC}$	① Given
② $\overline{AB} \cong \overline{CB}$	② An isosceles $\triangle$ has 2 $\cong$ sides
③ $\overline{AD} \cong \overline{CD}$	③ A midpoint divides a segment into 2 $\cong$ segments
④ $\overline{BD} \cong \overline{BD}$	④ Reflexive Property
⑤ $\triangle ABD \cong \triangle CBD$	⑤ SSS

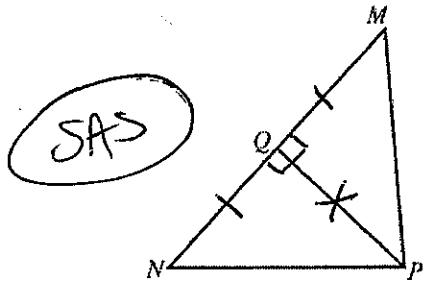
26. *Given:* $\overline{DB} \perp \overline{AB}, \overline{AC} \perp \overline{DC}, \overline{BE} \cong \overline{CE}$
Prove: $\triangle ABE \cong \triangle DCE$



ASA

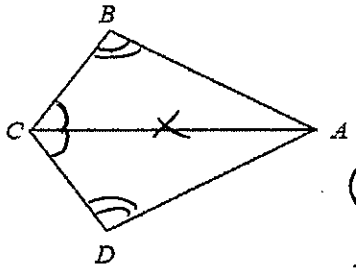
Statements	Reasons
① $\overline{DB} \perp \overline{AB}, \overline{AC} \perp \overline{DC}$ $\overline{BE} \cong \overline{CE}$	① Given
② $\angle B$ and $\angle C$ are right $\angle$'s	② $\perp$ lines form right $\angle$'s
③ $\angle B \cong \angle C$	③ All right $\angle$'s are $\cong$
④ $\angle BEA \cong \angle CED$	④ Vertical angles are $\cong$
⑤ $\triangle ABE \cong \triangle DCE$	⑤ ASA

27. *Given:* $\overline{PQ}$ bisects $\overline{MN}$, $\overline{PQ} \perp \overline{MN}$
Prove: $\Delta MPQ \cong \Delta NPQ$



Statements	Reasons
① $\overline{PQ}$ bisects $\overline{MN}$, $\overline{PQ} \perp \overline{MN}$	① Given
② Q is midpoint of $\overline{MN}$	② A segment bisector intersects a segment at its midpoint
③ $\overline{NQ} \cong \overline{MQ}$	③ A midpoint creates 2 $\cong$ segments
④ $\angle PQN$ and $\angle PQM$ are right $\angle$'s	④ $\perp$ lines form right $\angle$'s
⑤ $\angle PQN \cong \angle PQM$	⑤ All right $\angle$'s are $\cong$
⑥ $\overline{PQ} \cong \overline{PQ}$	⑥ Reflexive Property
⑦ $\Delta MPQ \cong \Delta NPQ$	⑦ SAS

28. *Given:* $\overline{AC}$ bisects $\angle BCD$, $\angle B \cong \angle D$
Prove: $\Delta ABC \cong \Delta ADC$



AAS

Statements	Reasons
① $\overline{AC}$ bisects $\angle BCD$ $\angle B \cong \angle D$	① Given
② $\angle BCA \cong \angle DCA$	② Angle bisector creates 2 $\cong$ angles
③ $\overline{AC} \cong \overline{AC}$	③ Reflexive property
④ $\Delta ABC \cong \Delta ADC$	④ AAS