Geometry (E)
Triangle Congruency

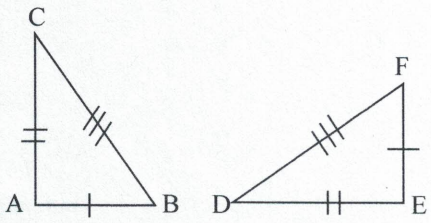
Name: KEY

Period: ____

Triangle Congruence Worksheet #1

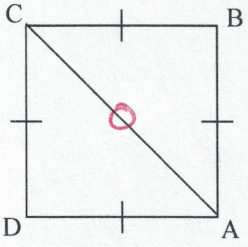
For each pair of triangles, tell which postulates, **if any**, make the triangles congruent.

1. $\triangle ABC \cong \triangle EFD$ SSS

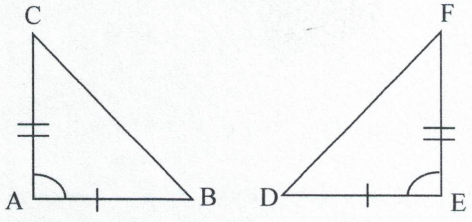


2. $\triangle ABC \cong \triangle CDA$ SSS

$\overline{AC} \cong \overline{AC}$ REFLEXIVE PROPERTY

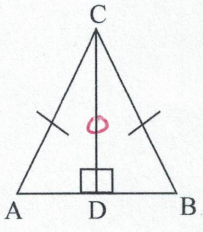


3. $\triangle ABC \cong$ ~~$\triangle EFD$~~ $\triangle EDF$ SAS



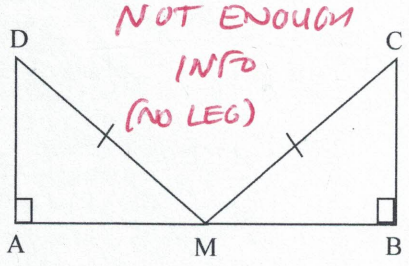
4. $\triangle ADC \cong \triangle BDC$ HL

$\overline{CD} \cong \overline{CD}$ REFLEXIVE PROPERTY



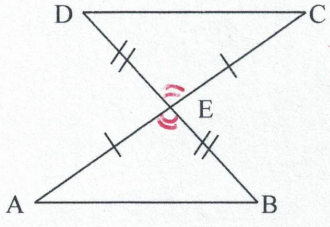
5. $\triangle MAD \cong \triangle MBC$ X

NOT ENOUGH INFO (NO LEG)



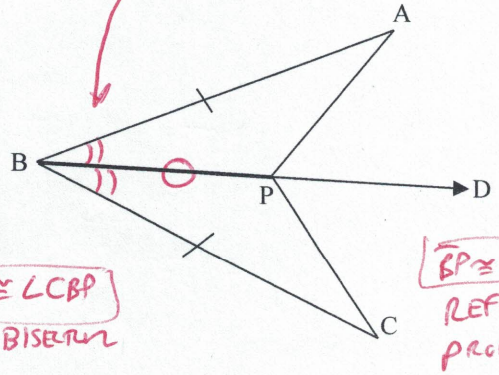
6. $\triangle ABE \cong \triangle CDE$ SAS

$\angle DEC \cong \angle BEA$ VERTICAL $\angle$s



7. $\triangle BAP \cong \triangle BCP$ SAS

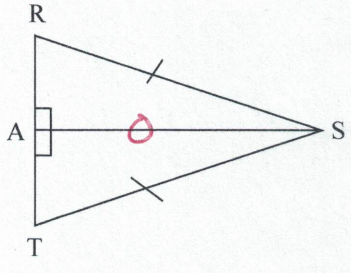
Given: $\overrightarrow{BD}$ bisects $\angle ABC$



$\angle ABP \cong \angle CBP$ ANGLE BISECTOR

$\overline{BP} \cong \overline{BP}$ REFLEXIVE PROPERTY

8. $\triangle SAT \cong \triangle SAR$ HL

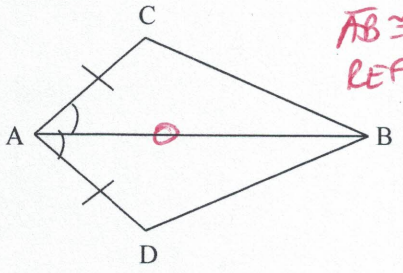


$\overline{AS} \cong \overline{AS}$ REFLEXIVE PROPERTY

Triangle Congruence Worksheet #2

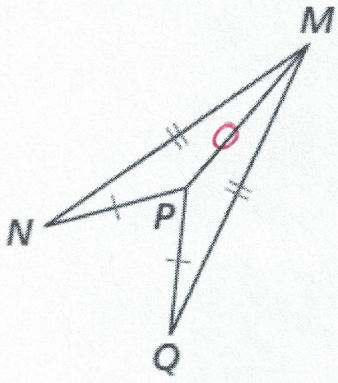
For each pair of triangles, Determine the congruent triangles and tell which postulates, **if any**, make the triangles congruent.

1. $\triangle ABC \cong \triangle ABD$ because SAS



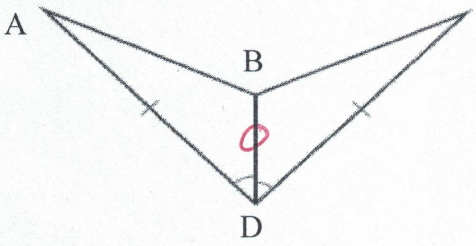
$\overline{AB} \cong \overline{AB}$ REFLEXIVE PROPERTY

2. $\triangle MNP \cong \triangle MQP$ SSS



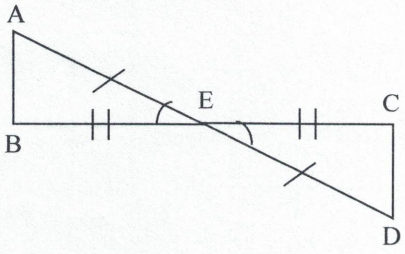
$\overline{MP} \cong \overline{MP}$ REFLEXIVE PROPERTY

3. $\triangle ABD \cong \triangle CBD$ because SAS

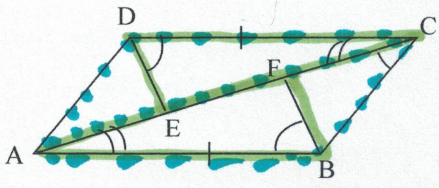


$\overline{BD} \cong \overline{BD}$ REFLEXIVE PROPERTY

4. $\triangle ABE \cong \triangle DCE$ because SAS



5. $\triangle CDE \cong \triangle ABF$ because ASA



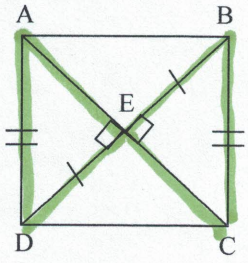
ALSO POSSIBLE

$\overline{AC} \cong \overline{AC}$ (REFLEXIVE

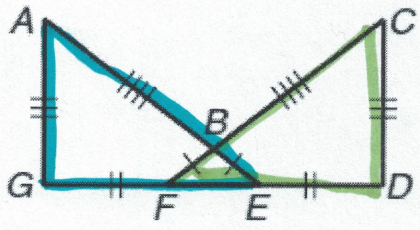
$\triangle ACD \cong \triangle CAB$

BY SAS

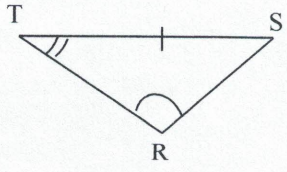
6. $\triangle APE \cong \triangle CBE$ because HL

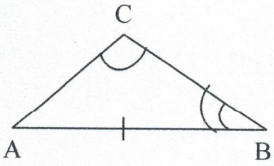


7. $\triangle AEG \cong \triangle CFD$ because SSS

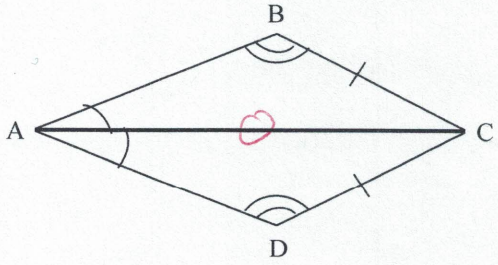


8. $\triangle RST \cong \triangle CAB$ because AAS





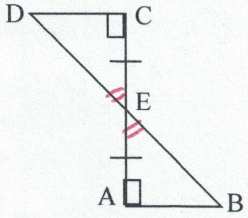
9. $\triangle ABC \cong \triangle ADC$ because AAS



Triangle Congruence Worksheet #3

II. For each pair of triangles, (a) Are they congruent? (b) If so, write the triangle congruency statement. (c) Give the postulate (SSS, SAS, ASA, AAS, HL) that makes them congruent. (d) List any additional information needed to prove them congruent (vertical angles, reflexive property, etc).

1.



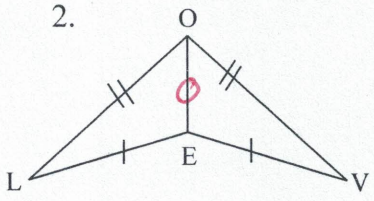
a. YES

b. Δ ABE $\cong \Delta$ CDE

c. ASA

d. VERTICAL $\angle$s

2.



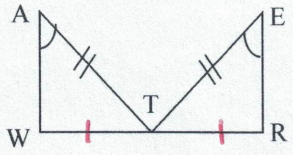
a. YES

b. Δ LEO $\cong \Delta$ VEO

c. SSS

d. REFLEXIVE PROPERTY

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



a. NO

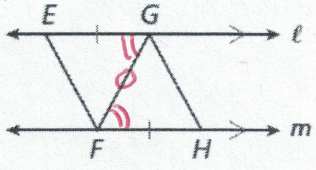
b. Δ ___ $\cong \Delta$ ___

c.

d.

NO SSA

4.



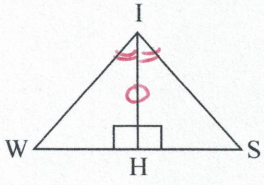
a. YES

b. Δ EFG $\cong \Delta$ HGF

c. ASA

d. AIA AND REFLEXIVE PROPERTY

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



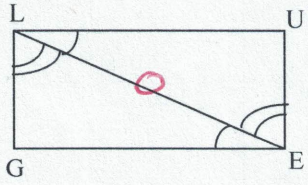
a. YES

b. Δ WHI $\cong \Delta$ SHI

c. ASA

d. ANGLE BISECTOR REFLEXIVE PROPERTY

6.



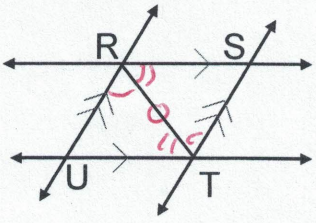
a. YES

b. Δ LGE $\cong \Delta$ EUL

c. ASA

d. REFLEXIVE PROPERTY

7.



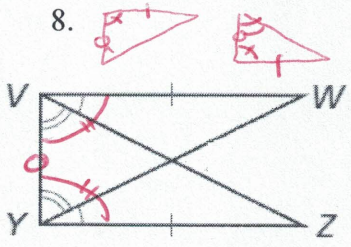
a. YES

b. Δ RUT $\cong \Delta$ TSR

c. ASA

d. AIA AND REFLEXIVE PROPERTY

8.



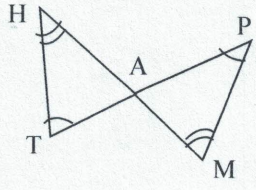
a. YES

b. Δ VWY $\cong \Delta$ YZV

c. SAS or ASA

d. REFLEXIVE PROPERTY | NOTHING

9.



a. NO

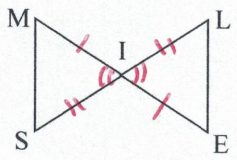
b. Δ ___ $\cong \Delta$ ___

c.

d.

NO AAA

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



a. YES

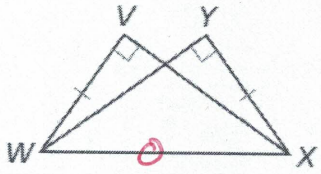
b. Δ MIS $\cong \Delta$ EIL

c. SAS

MIDPOINT

d. VERTICAL $\angle$s

11.



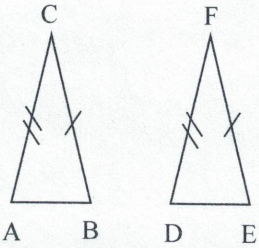
a. YES

b. Δ WVX $\cong \Delta$ XYW

c. HL

d. REFLEXIVE PROPERTY

12.



a. NO

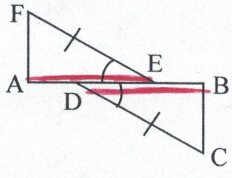
b. Δ ___ $\cong \Delta$ ___ NOT ENOUGH INFO

c.

d.

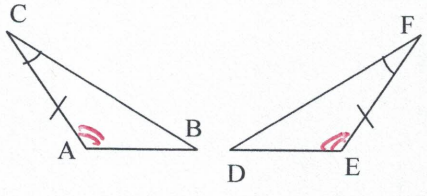
III. To prove the triangles congruent by the given congruency postulate, determine what additional piece of information would be needed.

1. SAS



$\overline{AE} \cong \overline{DB}$

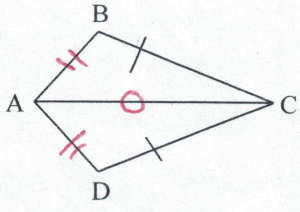
2. ASA



$\angle A \cong \angle E$

OR $\angle CAB \cong \angle FED$

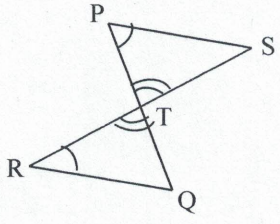
3. SSS



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

CAN ASSUME $\overline{AC} \cong \overline{AC}$ (REFLEXIVE PROPERTY)

4. AAS

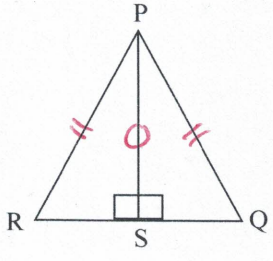


$\overline{PS} \cong \overline{RQ}$

OR

$\overline{ST} \cong \overline{TR}$

5. HL

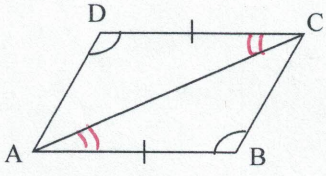


$\overline{PR} \cong \overline{PQ}$

CAN ASSUME $\overline{PS} \cong \overline{PS}$

(REFLEXIVE PROPERTY)

6. ASA



$\angle DCA \cong \angle BAC$