

Unit 4- Worksheet #4: Prove Triangles Congruent using SAS and HL

Use the diagram to name the included angle between the given pair of sides.

1.  $\overline{XY} \cong \overline{YW}$

$\angle XYW$

2.  $\overline{WZ} \cong \overline{ZY}$

$\angle Z$  OR  $\angle WZY$

3.  $\overline{ZW} \cong \overline{YW}$

$\angle ZWY$

4.  $\overline{WX} \cong \overline{YX}$

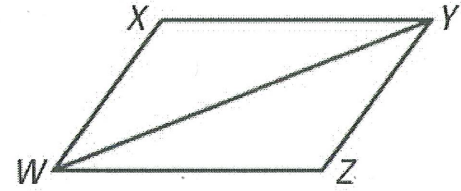
$\angle X$  OR  $\angle WXY$

5.  $\overline{XY} \cong \overline{YZ}$

$\angle XYZ$

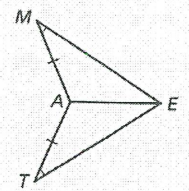
6.  $\overline{WX} \cong \overline{WZ}$

$\angle XWZ$



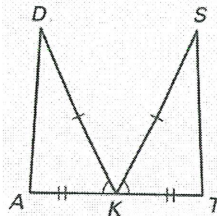
Decide whether enough information is given to prove that the triangles are congruent. If there is enough information, write a congruence statement and state the congruence postulate or theorem you would use.

7.  $\triangle MAE$  and  $\triangle TAE$



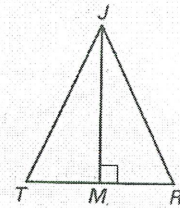
Not Enough Info.

8.  $\triangle DKA$  and  $\triangle TKS$



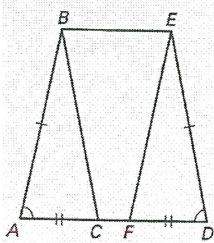
$\triangle ADK \cong \triangle TSK$

9.  $\triangle JRM$  and  $\triangle JTM$



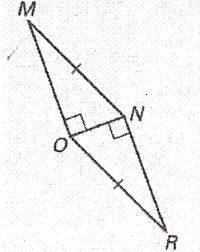
Not Enough Info.

10.  $\triangle ABC$  and  $\triangle DEF$



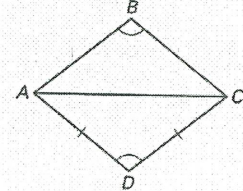
$\triangle ABC \cong \triangle DEF$

11.  $\triangle MNO$  and  $\triangle RNO$



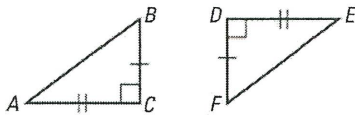
$\triangle MON \cong \triangle RNO$

12.  $\triangle ABC$  and  $\triangle ADC$



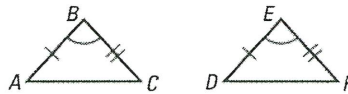
Not Enough Info

13.  $\triangle ABC$  and  $\triangle EFD$



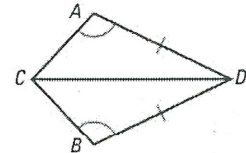
$\triangle ABC \cong \triangle EFD$

14.  $\triangle ABC$  and  $\triangle DEF$



$\triangle ABC \cong \triangle DEF$

15.  $\triangle CAD$  and  $\triangle CBD$



Not Enough Info

16. Which of the following sets of information **does not** allow you to conclude that  $\triangle ABC \cong \triangle DEF$ ?

A.  $\overline{AB} \cong \overline{DE}$ ,  $\overline{BC} \cong \overline{EF}$ ,  $\angle B \cong \angle E$

**[B.]**  $\overline{AB} \cong \overline{DF}$ ,  $\overline{AC} \cong \overline{DE}$ ,  $\angle C \cong \angle E$

C.  $\overline{AC} \cong \overline{DF}$ ,  $\overline{BC} \cong \overline{EF}$ ,  $\overline{BA} \cong \overline{ED}$

D.  $\overline{AB} \cong \overline{DE}$ ,  $\overline{AC} \cong \overline{DF}$ ,  $\angle A \cong \angle D$

State the third congruence that must be given to prove that  $\triangle JRM \cong \triangle DFB$ .

17. Given:  $\overline{JR} \cong \overline{DF}$ ,  $\overline{JM} \cong \overline{DB}$ ,  $\overline{MR} \cong \overline{BF}$

Use the SSS Congruence Postulate

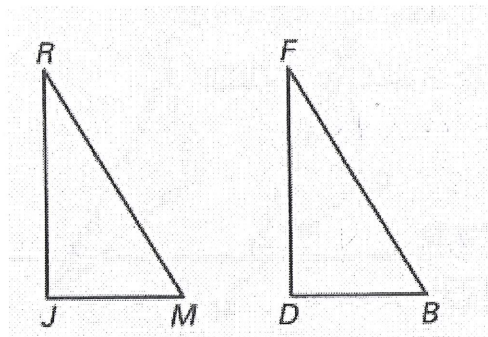
18. Given:  $\overline{JR} \cong \overline{DF}$ ,  $\overline{JM} \cong \overline{DB}$ ,  $\angle J \cong \angle D$

Use the SAS Congruence Postulate

19. Given:  $\overline{JR} \cong \overline{DF}$ ,  $\angle J$  is a right angle and  $\angle J \cong \angle D$

$\overline{RM} \cong \overline{FB}$

Use the HL Congruence Postulate

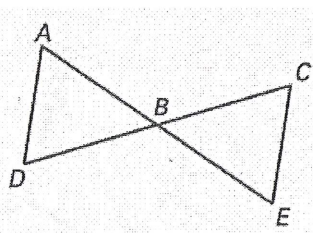


20. Prove.

Given:  $B$  is the midpoint of  $\overline{AE}$

$B$  is the midpoint of  $\overline{CD}$

Prove:  $\triangle ABD \cong \triangle EBC$

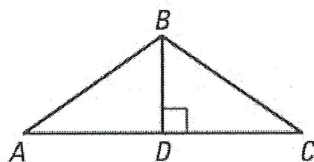


Statement	Reason
1. $B$ is the midpoint of $\overline{AE}$	1. Given
2. $\overline{AB} \cong \overline{EB}$	2. Def <sup>n</sup> of a Midpoint
3. $B$ is the midpoint of $\overline{CD}$	3. Given
4. $\overline{DB} \cong \overline{CB}$	4. Def <sup>n</sup> of a Midpoint
5. $\angle ABD \cong \angle EBC$	5. Vertical Angles
6. $\triangle ABD \cong \triangle EBC$	6. SAS

21. Prove.

Given:  $\overline{AB} \cong \overline{CB}$

Prove:  $\triangle ABD \cong \triangle CBD$



Statement	Reason
1. $\overline{AB} \cong \overline{CB}$	1. Given
2. $\angle BDC$ and $\angle BDA$ are right angles	2. Given
3. $\overline{BD} \perp \overline{AC}$	3. Def <sup>n</sup> of Perpendicular Lines
4. $\triangle BDC$ and $\triangle BDA$ are Right $\Delta$ 's	4. Def <sup>n</sup> of Right Triangles
5. $\overline{BD} \cong \overline{BD}$	5. Reflexive Property
6. $\triangle ABD \cong \triangle CBD$	6. HL