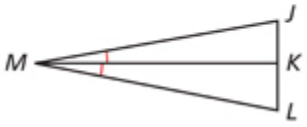
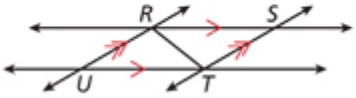
3.9 Homework (ASA, AAS, and HL Proofs)

Determine if you can use ASA to prove the triangles congruent. Explain.

11. $\triangle MKJ$ and $\triangle MKL$

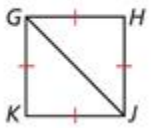


12. $\triangle RST$ and $\triangle TUR$

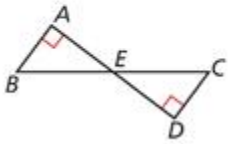


Determine if you can use the HL Congruence Theorem to prove the triangles congruent. If not, tell what else you need to know.

14. $\triangle GHJ$ and $\triangle JKG$

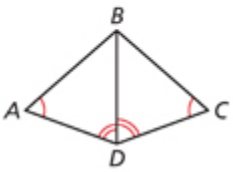


15. $\triangle ABE$ and $\triangle DCE$, given that E is the midpoint of $\overline{AD}$ and $\overline{BC}$

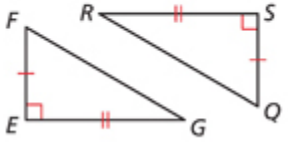


Multi-Step **For each pair of triangles write a triangle congruence statement. Identify the transformation that moves one triangle to the position of the other triangle.**

16.

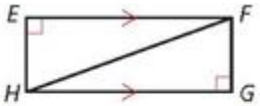


17.



18. **Critical Thinking** Side-Side-Angle (SSA) cannot be used to prove two triangles congruent. Draw a diagram that shows why this is true.

20. ///ERROR ANALYSIS/// Two proofs that $\triangle EFH \cong \triangle GHF$ are given. Which is incorrect? Explain the error.



A

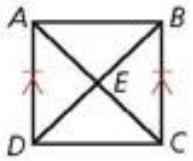
It is given that $\overline{EF} \parallel \overline{GH}$. By the Alt. Int. $\measuredangle$ Thm., $\angle EFH \cong \angle GHF$. $\angle E \cong \angle G$ by the Rt. $\angle \cong$ Thm. By the Reflex. Prop. of $\cong$, $\overline{HF} \cong \overline{HF}$. So by AAS, $\triangle EFH \cong \triangle GHF$.

B

$\overline{HF}$ is the hyp. of both rt. $\triangle$. $\overline{HF} \cong \overline{HF}$ by the Reflex. Prop. of $\cong$. Since the opp. sides of a rect. are $\cong$, $\overline{EF} \cong \overline{GH}$. So by *HL*, $\triangle EFH \cong \triangle FHG$.

3.9 Homework (ASA, AAS, and HL Proofs)

22. Use AAS to prove the triangles congruent.



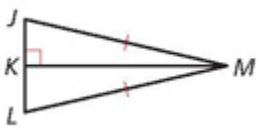
Given: $\overline{AD} \parallel \overline{BC}$, $\overline{AD} \cong \overline{CB}$

Prove: $\triangle AED \cong \triangle CEB$

Proof:

Statements	Reasons
1. $\overline{AD} \parallel \overline{BC}$	1. a. ?
2. $\angle DAE \cong \angle BCE$	2. b. ?
3. c. ?	3. Vert. $\angle$ Thm.
4. d. ?	3. Given
5. e. ?	4. f. ?

23. Prove the Hypotenuse-Angle (HA) Theorem.



Given: $\overline{KM} \perp \overline{JL}$, $\overline{JM} \cong \overline{LM}$, $\angle JMK \cong \angle LMK$

Prove: $\triangle JKM \cong \triangle LKM$

26. What additional congruence statement is necessary to prove $\triangle XWY \cong \triangle XVZ$ by ASA?

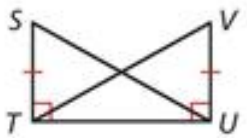
(A) $\angle XVZ \cong \angle XWY$

(B) $\angle VUY \cong \angle WUZ$

(C) $\overline{VZ} \cong \overline{WY}$

(D) $\overline{XZ} \cong \overline{XY}$

27. Which postulate or theorem justifies the congruence statement $\triangle STU \cong \triangle VUT$?



(F) ASA

(G) SSS

(H) HL

(J) SAS

28. Which of the following congruence statements is true?

(A) $\angle A \cong \angle B$

(B) $\overline{CE} \cong \overline{DE}$

(C) $\triangle AED \cong \triangle CEB$

(D) $\triangle AED \cong \triangle BEC$

29. In $\triangle RST$, $RT = 6y - 2$. In $\triangle UVW$, $UW = 2y + 7$. $\angle R \cong \angle U$, and $\angle S \cong \angle V$. What must be the value of y in order to prove that $\triangle RST \cong \triangle UVW$?

(F) 1.25 (G) 2.25 (H) 9.0 (J) 11.5