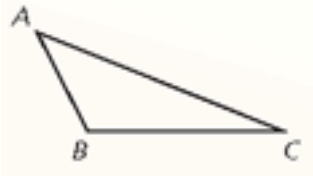


### Unit 4: Congruent Triangles Study Guide

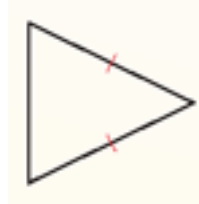
#### 4.1 Angles of Triangles

Classify the triangle by its sides and by measuring its angles.

1.

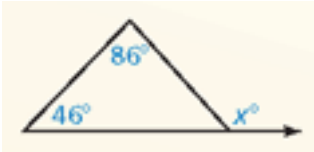


2.

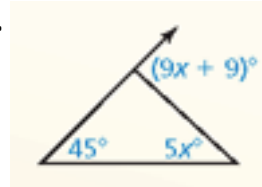


Find the measure of the exterior angle.

3.

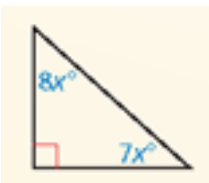


4.

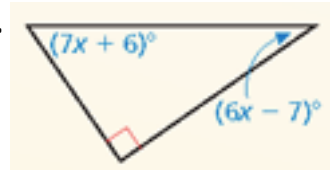


Find the measure of each acute angle.

5.



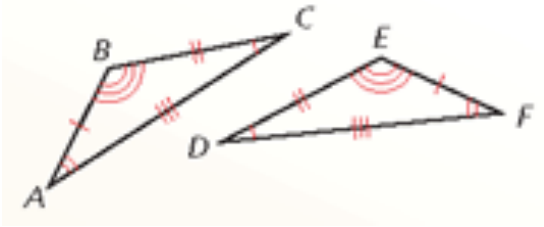
6.



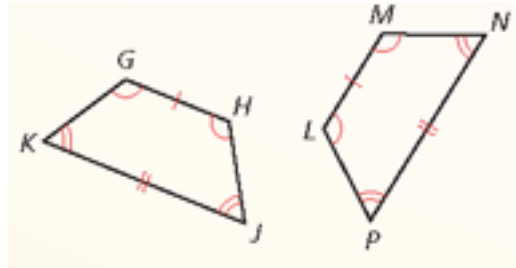
### 4.2 Congruent Polygons

Identify all pairs of congruent corresponding parts. Then write a congruence statement for the polygons.

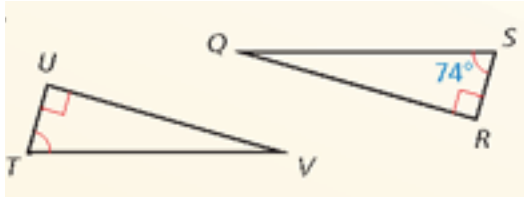
7.



8.



9. Find  $m\angle V$ .

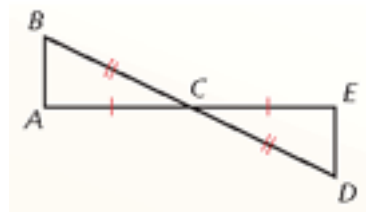


### 4.3 Proving Triangle Congruence by SAS

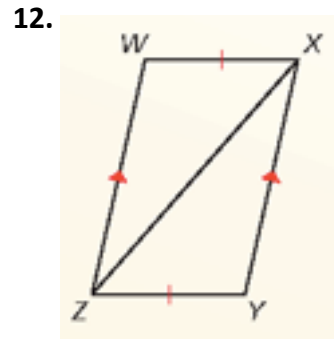
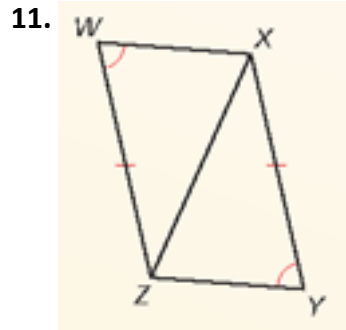
10. Write a proof.

**Given:**  $\overline{AC} \cong \overline{EC}$ ,  $\overline{BC} \cong \overline{DC}$

**Prove:**  $\triangle ABC \cong \triangle EDC$



Decide whether enough information is given to prove that  $\triangle WXZ \cong \triangle YZX$  using the SAS Congruence Theorem. If so, write a proof. If not, explain why.



### 5.4 Equilateral and Isosceles Triangles

13. In  $\triangle LMN$ ,  $\overline{LM} \cong \overline{LN}$ . Name two congruent angles.



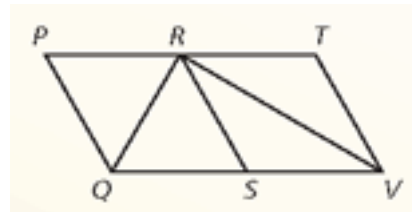
Complete the statement.

14. If  $\overline{QP} \cong \overline{QR}$ , then  $\angle \_\_\_\_\_ \cong \angle \_\_\_\_\_$ .

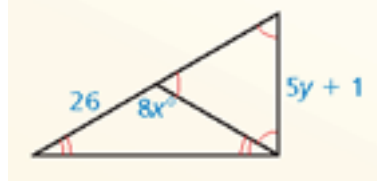
15. If  $\angle TRV \cong \angle TVR$ , then  $\_\_\_\_\_ \cong \_\_\_\_\_$ .

16. If  $\overline{RQ} \cong \overline{RS}$ , then  $\angle \_\_\_\_\_ \cong \angle \_\_\_\_\_$ .

17. If  $\angle SRV \cong \angle SVR$  then  $\_\_\_\_\_ \cong \_\_\_\_\_$ .



18. Find the values of  $x$  and  $y$  in the diagram.

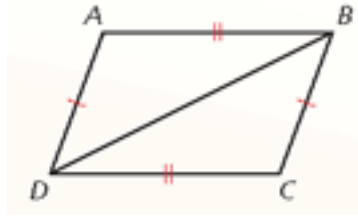


#### 4.5 Proving Triangles Congruence by SSS

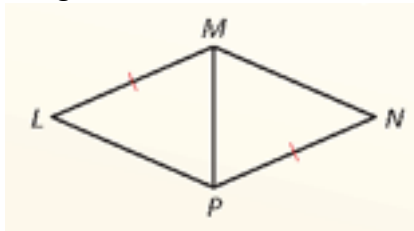
19. Write a proof.

**Given:**  $\overline{AD} \cong \overline{CB}$ ,  $\overline{AB} \cong \overline{CD}$

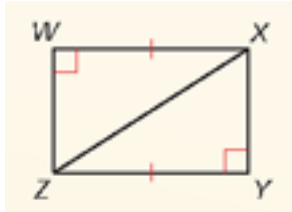
**Prove:**  $\triangle ABD \cong \triangle CDB$



20. Decide whether enough information is given to prove that  $\triangle LMP \cong \triangle NPM$  using the SSS Congruence Theorem. If so, write a proof. If not, explain why.



21. Decide whether enough information is given to prove that  $\triangle WXZ \cong \triangle YZX$  using the HL Congruence Theorem. If so, write a proof. If not, explain why.

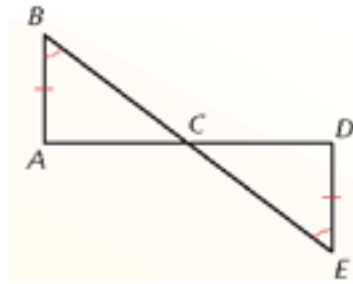


**4.6 Proving Triangle Congruence by ASA and AAS**

**22.** Write a proof.

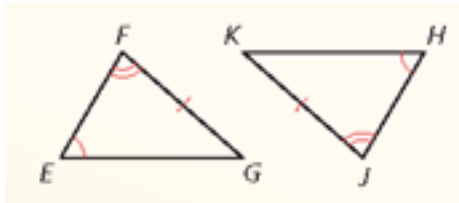
**Given:**  $\overline{AB} \cong \overline{DE}$ ,  $\angle ABC \cong \angle DEC$

**Prove:**  $\triangle ABC \cong \triangle DEC$

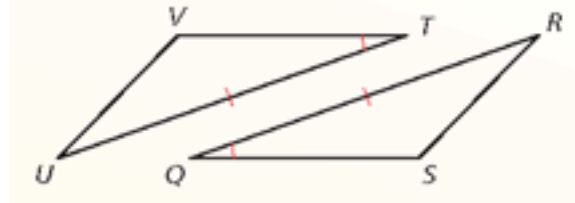


Decide whether enough information is given to prove that the triangles are congruent using the AAS Congruence Theorem. If so, write a proof. If not, explain why.

**23.**  $\triangle EFG, \triangle HJK$

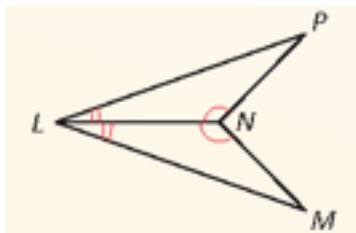


**24.**  $\triangle TUV, \triangle QRS$

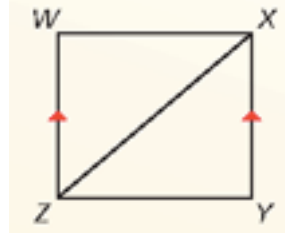


Decide whether enough information is given to prove that the triangles are congruent using the ASA Congruence Theorem. If so, write a proof. If not, explain why.

**25.**  $\triangle LPN, \triangle LMN$



**26.**  $\triangle WXZ, \triangle YZX$

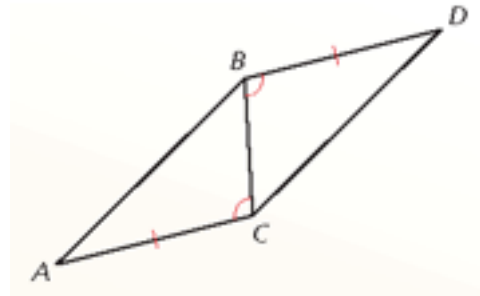


#### 4.7 Using Congruent Triangles

27. Write a proof.

**Given:**  $\overline{AC} \cong \overline{DB}$ ,  $\angle BCA \cong \angle CBD$

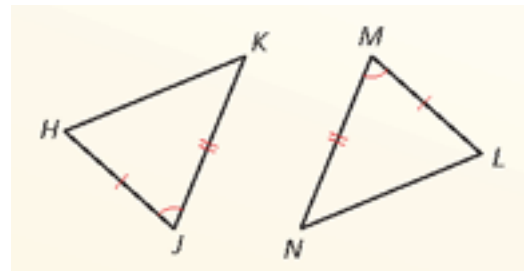
**Prove:**  $\angle A \cong \angle D$



28. Write a proof.

**Given:**  $\overline{HJ} \cong \overline{LM}$ ,  $\overline{KJ} \cong \overline{NM}$ ,  $\angle J \cong \angle M$

**Prove:**  $\angle K \cong \angle N$



29. Write a proof.

**Given:**  $\overline{SV} \cong \overline{TV}$ ,  $\overline{SQ} \cong \overline{TQ}$

**Prove:**  $\angle 1 \cong \angle 2$

