Name_____ Date_____

4.3 – Triangle Congruence by SSS and SAS

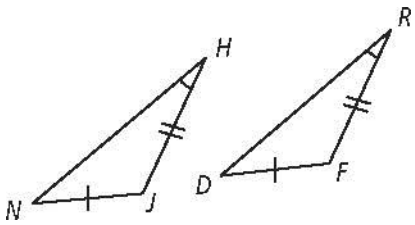
Draw ΔMGT. Use the triangle to answer the questions below.

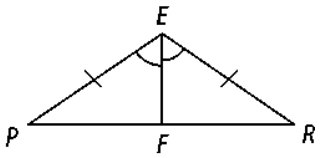
1) What angle is included between $\overline{GM}$ and $\overline{MT}$?

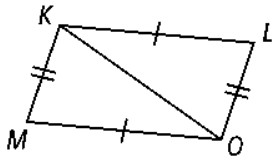
2) Which sides include $\angle T$?

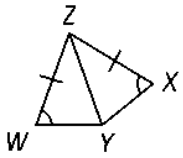
3) What angle is included between $\overline{GT}$ and $\overline{MG}$?

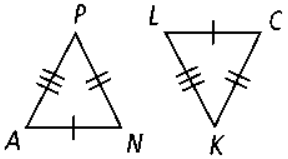
Would you use SSS or SAS to prove the triangles congruent? If there is not enough information to prove the triangles congruent by SSS or SAS, write *not enough information*.

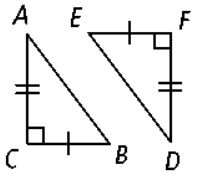
4) 

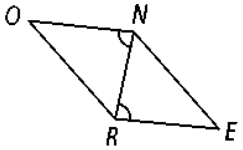
5) 

6) 

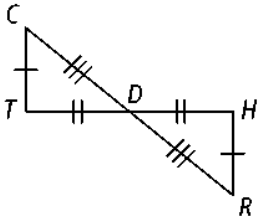
7) 

8) 

9) 

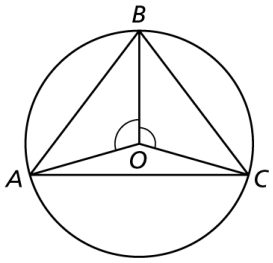
10) 

11) 

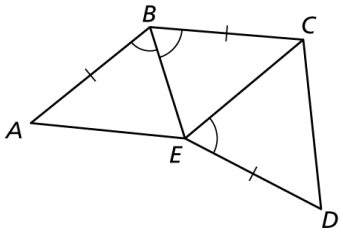
12) 

Use the given information to **name** two congruent triangles. **Explain** your reasoning. (What's congruent or not…etc.)

13)



14)

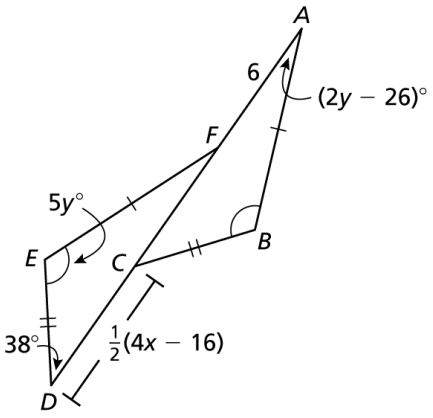


15) Draw a Diagram A student draws ΔABC and ΔQRS. The following sides and angles are congruent:

$$\overline{AC} \cong \overline{QS} \qquad \overline{AB} \cong \overline{QR} \qquad \angle B \cong \angle R$$

Based on this, can the student use either SSS or SAS to prove that $\Delta ABC \cong \Delta QRS$? If the answer is no, explain what additional information the student needs. Use a sketch to help explain your answer.

16) Use the information given in the figure to find the values of x and y.



17) Use the information to complete the following flow chart proof.

1. _____

2. _____

3. _____

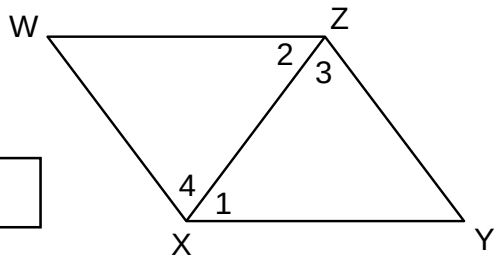
4. _____

5. _____

6. _____

7. _____ ≅

8. _____



Given: $\overline{XY} \cong \overline{ZW}$; $\angle 1 \cong \angle 2$

Prove: $\Delta WZX \cong \Delta YXZ$

18) Use the information to complete the following flow chart proof.

1. _____

2. _____

3. _____

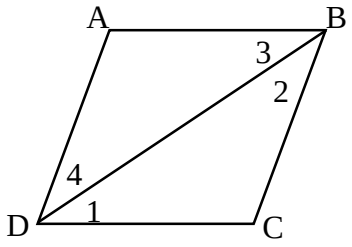
4. _____

5. _____

6. _____

7. _____ ≅

8. _____



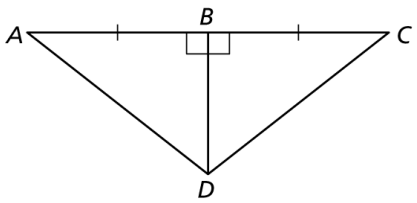
Given: $\overline{AB} \cong \overline{CD}$; $\overline{BC} \cong \overline{DA}$

Prove: $\Delta ABD \cong \Delta CDB$

Complete the following two-column proofs

19) Given: $\angle ABD$ and $\angle CBD$ are right angles and $\overline{BD}$ bisects $\overline{AC}$.

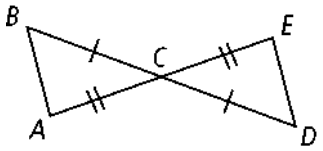
Prove: $\Delta ABD \cong \Delta CBD$



Statement	Reasons
1. $\angle ABD$ and $\angle CBD$ are right angles	_____
2. $m\angle ABD = 90°$ and $m\angle CBD = 90°$	_____
3. $m\angle ABD = m\angle CBD$	_____
4. $\angle ABD \cong \angle CBD$	_____
5. $\overline{AB} \cong \overline{CB}$	Definition of a Bisector
6. $\overline{BD} \cong \overline{BD}$	_____
7. $\Delta ABD \cong \Delta CBD$	_____

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

Prove: $\Delta ACB \cong \Delta ECD$



Statement	Reasons

21) ΔFGH and ΔPQR are both equilateral triangles. Your friend says this means they are congruent by the SSS Postulate. Is your friend correct? Explain.

22) A student is gluing same-sized toothpicks together to make triangles. She plans to use these triangles to make a model of a bridge. Will all the triangles be congruent? Explain your answer.