

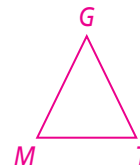
Practice

Form G

Triangle Congruence by SSS and SAS

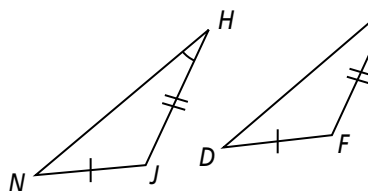
Draw $\triangle MGT$. Use the triangle to answer the questions below.

1. What angle is included between \overline{GM} and \overline{MT} ? $\angle M$
2. Which sides include $\angle T$? \overline{GT} and \overline{TM}
3. What angle is included between \overline{GT} and \overline{MG} ? $\angle G$

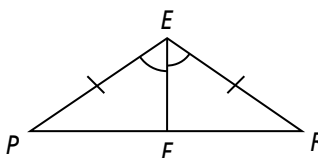


Would you use SSS or SAS to prove the triangles congruent? If there is not enough information to prove the triangles congruent by SSS or SAS, write *not enough information*. Explain your answer.

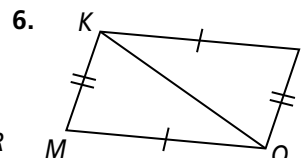
4. 5.



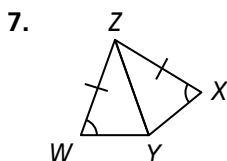
Not enough information; two pairs of corresponding sides are congruent, but the congruent angle is not included.



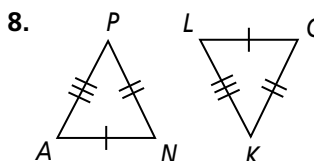
SAS; two pairs of corresponding sides and their included angle are congruent.



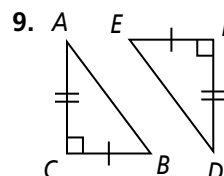
SSS; three pairs of corresponding sides are congruent.



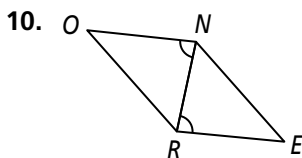
Not enough information; two pairs of corresponding sides are congruent, but the congruent angle is not the included angle.



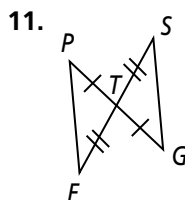
SSS; three corresponding sides are congruent.



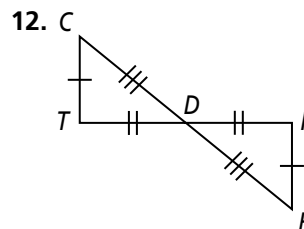
SAS; two pairs of corresponding sides and their included right angle are congruent.



Not enough information; one pair of corresponding sides and corresponding angles are congruent, but the other pair of corresponding sides that form the included angle must also be congruent.



SAS; two pairs of corresponding sides and their included vertical angles are congruent.



SSS or SAS; three pairs of corresponding sides are congruent, or, two pairs of corresponding sides and their included vertical angles are congruent.

Practice (continued)

Form G

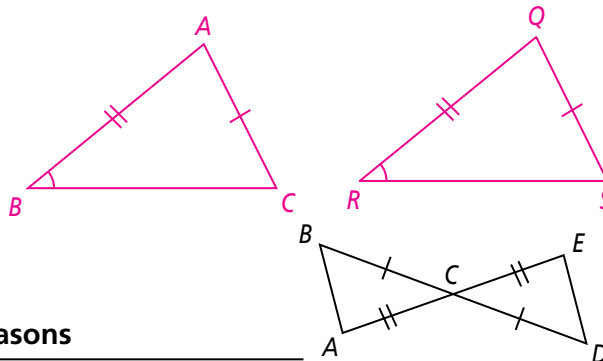
Triangle Congruence by SSS and SAS

13. **Draw a Diagram** A student draws $\triangle ABC$ and $\triangle QRS$. The following sides and angles are congruent:

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

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

No; $\angle B$ and $\angle R$ are not the included angles for the sides given. To prove congruence, you would need to know either that $\overline{BC} \cong \overline{RS}$ or $\angle Q \cong \angle A$.

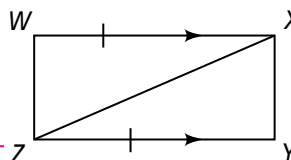


14. **Given:** $\overline{BC} \cong \overline{DC}$, $\overline{AC} \cong \overline{EC}$
Prove: $\triangle ABC \cong \triangle EDC$

Statements	Reasons
1) $\overline{BC} \cong \overline{DC}$	1) Given
2) $\overline{AC} \cong \overline{EC}$	2) Given
3) $\angle BCA \cong \angle DCE$	3) Vertical \angle s are \cong .
4) $\triangle ABC \cong \triangle EDC$	4) SAS

15. **Given:** $\overline{WX} \parallel \overline{YZ}$, $\overline{WX} \cong \overline{YZ}$
Prove: $\triangle WXZ \cong \triangle YZX$

Statements	Reasons
1) $\overline{WX} \parallel \overline{YZ}$	1) Given
2) $\angle WXZ \cong \angle YZX$	2) Alternate Interior \angle s are \cong .
3) $\overline{WX} \cong \overline{YZ}$	3) Given
4) $\overline{ZX} \cong \overline{XZ}$	4) Reflexive Property
5) $\triangle WXZ \cong \triangle YZX$	5) SAS



16. **Error Analysis** $\triangle FGH$ and $\triangle PQR$ are both equilateral triangles. Your friend says this means they are congruent by the SSS Postulate. Is your friend correct? Explain. **Incorrect; both triangles being equilateral means that the three angles and sides of each triangle are congruent, but there is no information comparing the side lengths of the two triangles.**
17. 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. **Yes; because all the triangles are made from the same-sized toothpick, all three corresponding sides will be congruent.**