

Chapter 4- Lesson 3

Proving Triangles Congruent

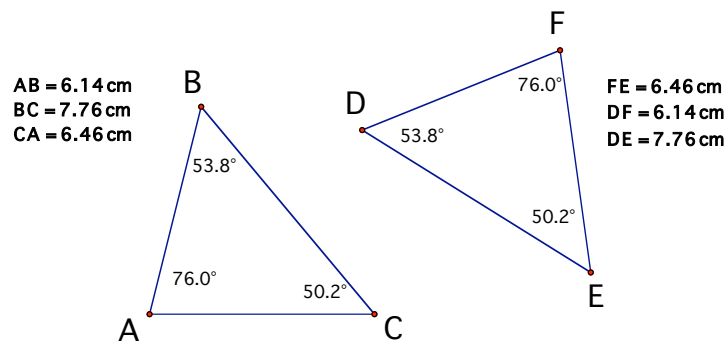
Goals

Write congruent statements for congruent triangles.

Prove triangles are congruent using SSS, ASA, SAA, and SAS.

In the previous lesson you constructed triangles when given various sides and angles. Sometimes this resulted in a unique triangle. In this lesson you will use those ideas to determine, and to prove, if two triangles are congruent.

- Do you really need to know that ALL three pairs of angles and ALL three pairs of sides are congruent before you can conclude that the triangles are congruent? What is the **least information** you could have and still be justified to conclude that the triangles **must be congruent**? Explain.
- What are the three triangle congruence postulates? Write them in “If _____, then _____” form.
- Consider the pair of triangles shown below. Are they congruent?



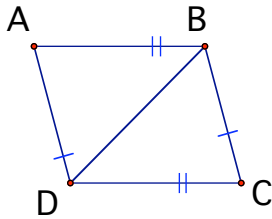
Draw arrows to show how the angles from the triangle on the left correspond (match up) to the angles from the triangle on the right.

Write a congruence statement for the triangles above.

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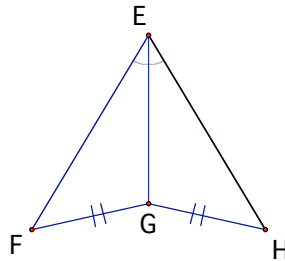
4. Consider the pairs of triangles below. If possible, complete the congruence statement and state the appropriate congruence postulate. Otherwise, explain why you can not conclude that the triangles must be congruent.

a)



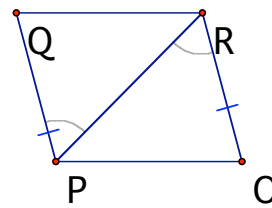
$$\triangle ABD \cong \triangle \underline{\hspace{1cm}}$$

b)



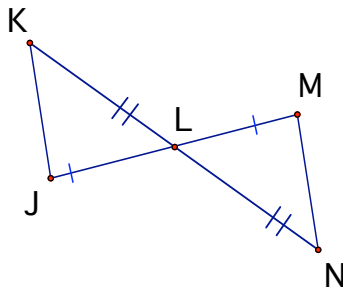
$$\triangle FGE \cong \triangle \underline{\hspace{1cm}}$$

c)



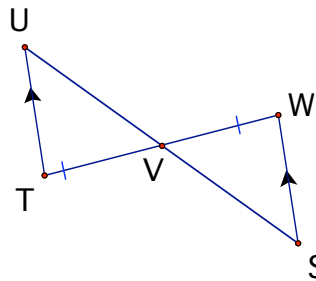
$$\triangle QPR \cong \triangle \underline{\hspace{1cm}}$$

d)



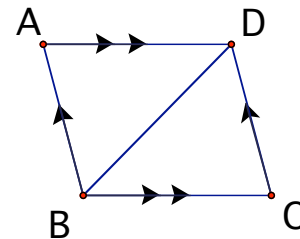
$$\triangle LMN \cong \triangle \underline{\hspace{1cm}}$$

e)



$$\triangle UTV \cong \triangle \underline{\hspace{1cm}}$$

f)



$$\triangle \underline{\hspace{1cm}} \cong \triangle ABD$$

5. Using separate paper, write a proof for each of the figures above for which a true congruence statement could be written. Include a sketch, a given statement and a prove statement for each of the proofs.