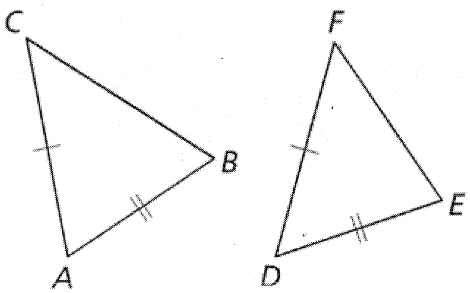
Lesson 2.04 – "On Your Own" Worksheet **Name:** Key

For Exercises 8–12, do each of the following:

a.) Tell whether the given information is enough to show that the triangles are congruent. The triangles are not necessarily drawn to scale.

b.) If the given information is enough, list the pairs of corresponding vertices of the two triangles. Then state which triangle congruence postulate guarantees that the triangles are congruent.

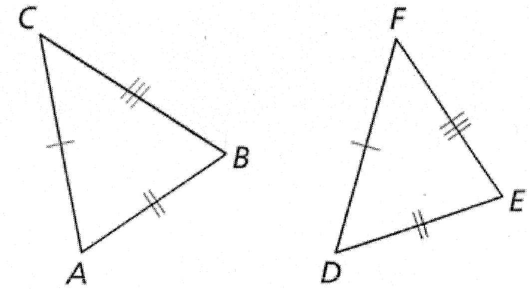
8.



a.) No

b.) we would need to know more information about a pair of congruent angles or that the other pair of sides is congruent

9.

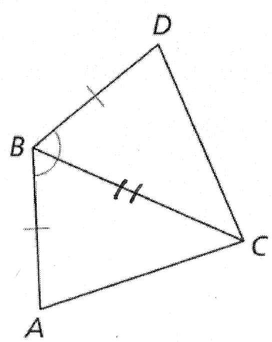


a.) yes

b.) $\triangle ABC \cong \triangle DEF$

SSS $\cong$

10.

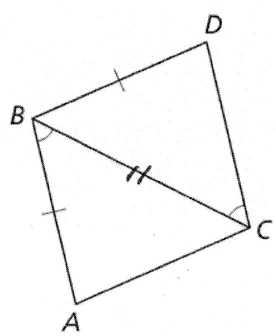


a.) yes

b.) $\triangle ABC \cong \triangle DBC$

SAS $\cong$

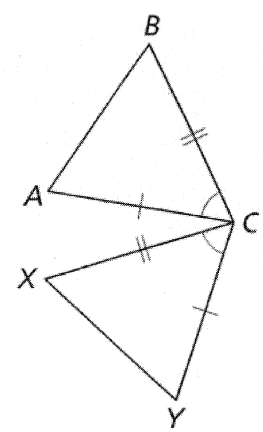
11.



a.) no

b.) more information about corresponding parts being congruent is needed.

12.



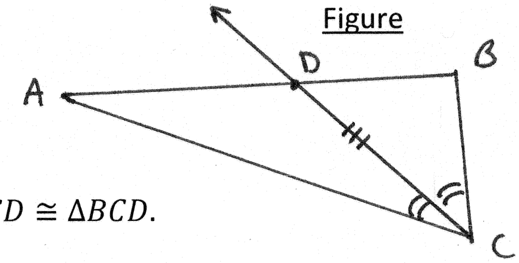
a.) yes

b.) $\triangle ABC \cong \triangle YXC$

SAS $\cong$

13. **Standardized Test Prep: In ΔABC, $\overline{CD}$ is the bisector of $\angle ACB$. Which of the following conjectures is true? Sketch a figure to help you decide.**

Figure



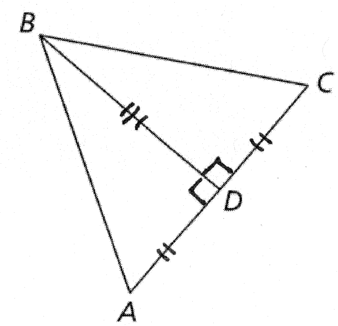
A. There is not sufficient evidence to prove that $\Delta ACD \cong \Delta BCD$.

B. $\Delta ACD \cong \Delta BCD$ is true by the Angle-Side-Angle postulate. In each triangle, the side between the two angles is $\overline{CD}$.

C. $\Delta ACD \cong \Delta BCD$ is true by the Side-Angle-Side postulate. Angle ACD and $\angle BCD$ are the congruent angles that are between the two pairs of congruent sides.

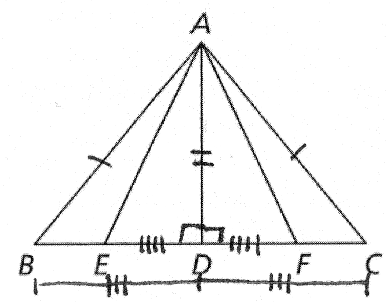
D. $\Delta ACD \cong \Delta BCD$ is true by the Side-Side-Side postulate.

14. In the figure below, $\overline{BD}$ is the *perpendicular bisector* of $\overline{AC}$. Based on this statement, which two triangles are congruent? Explain how you could prove that they are congruent.



$\Delta ABD \cong \Delta CBD$ using the SAS $\cong$ shortcut.

15. **Take It Further** In the figure at the right, $\overline{AD}$ is the perpendicular bisector of $\overline{BC}$. Based on this information, two triangles in the figure are congruent.



For each part, does the given piece of information help you determine that any additional triangles are congruent? If so, state the triangles and the congruence postulate that guarantees their congruence.

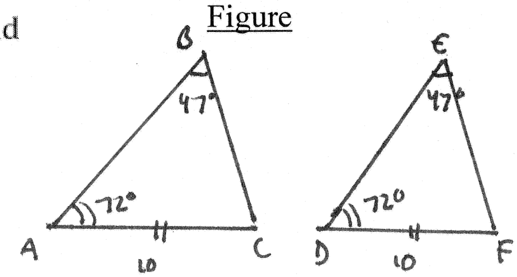
a. $AB = AC$ Does not ensure that any new triangles are congruent.

b. $\overline{AD}$ is the perpendicular bisector of $\overline{EF}$. $\Delta EDA \cong \Delta FDA$ (SAS $\cong$) ; $\Delta AEB \cong \Delta AFC$ (SSS $\cong$)
$\Delta AEC \cong \Delta AFB$ (SSS $\cong$)

c. $\angle EAD \cong \angle FAD$
$\Delta ADE \cong \Delta ADF$ (ASA $\cong$) ; $\Delta AEB \cong \Delta AFC$ (SSS $\cong$) ; $\Delta AEC \cong \Delta AFB$ (SSS $\cong$)

16. Assume you know that the sum of the measures of the angles in a triangle is 180°. Sketch a figure to help.

Figure



a. In $\triangle ABC$ and $\triangle DEF$, $m\angle A = m\angle D = 72°$, $m\angle B = m\angle E = 47°$, and $AC = DF = 10$ in. Is $\triangle ABC \cong \triangle DEF$? Explain.

Yes; AAS $\cong$

b. Explain why the AAS triplet guarantees triangle congruence.
The unknown 3rd angle pair must also be $\cong$, therefore the Δ's could be proven $\cong$ by ASA $\cong$