Name ______________________________ Date ______________

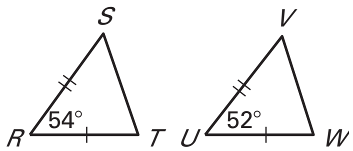
LESSON 5.6

Practice B

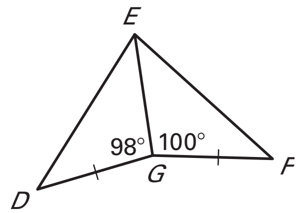
For use with pages 335–341

Complete with <, >, or = . *Explain.*

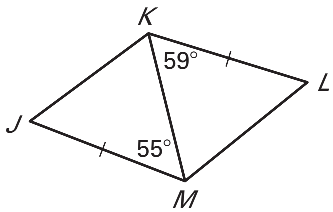
1. *ST* __?__ *VW*



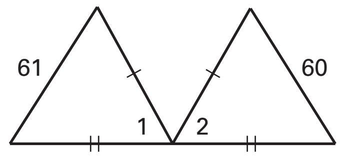
2. *DE* __?__ *EF*



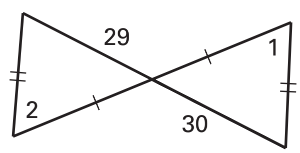
3. *JK* __?__ *LM*



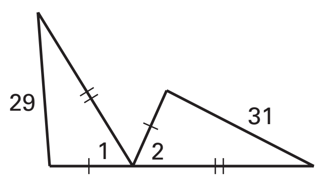
4. $m\angle 1$ __?__ $m\angle 2$



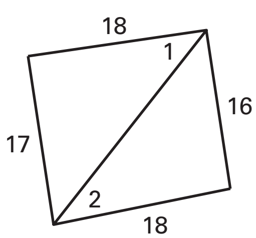
5. $m\angle 1$ __?__ $m\angle 2$



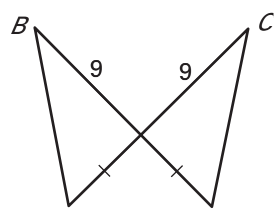
6. $m\angle 1$ __?__ $m\angle 2$



7. $m\angle 1$ __?__ $m\angle 2$

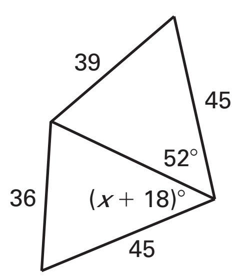


8. *AB* __?__ *CD*

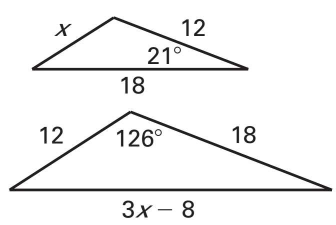


Use the Hinge Theorem or its converse and properties of triangles to write and solve an inequality to describe a restriction on the value of *x*.

9.



10.



LESSON 5.6

Practice B *continued*

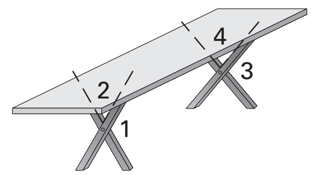
For use with pages 335–341

Write a temporary assumption you could make to prove the conclusion indirectly.

11. If two lines in a plane are parallel, then the two lines do not contain two sides of a triangle.

12. If two parallel lines are cut by a transversal so that a pair of consecutive interior angles is congruent, then the transversal is perpendicular to the parallel lines.

13. Table Making All four legs of the table shown have identical measurements, but they are attached to the table top so that ≥ 3 is smaller than ≥ 1.



a. Use the Hinge Theorem to *explain* why the table top is not level.

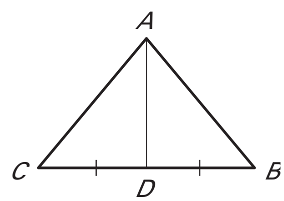
b. Use the Converse of the Hinge Theorem to *explain* how to use a length measure to determine when ≥ 4 ≅ ≥ 2 in reattaching the rear pair of legs to make the table level.

14. Fishing Contest One contestant in a catch-and-release fishing contest spends the morning at a location 1.8 miles due north of the starting point, then goes 1.2 miles due east for the rest of the day. A second contestant starts out 1.2 miles due east of the starting point, then goes another 1.8 miles in a direction 84° south of due east to spend the rest of the day. Which angler is farther from the starting point at the end of the day? *Explain* how you know.

15. Indirect Proof Arrange statements A–F in order to write an indirect proof of Case 1.

GIVEN: $\overline{AD}$ is a median of $\triangle ABC$.
≥ ADB ≅ ≥ ADC

PROVE: $AB = AC$



Case 1:

A. Then *m*≥ ADB < *m*≥ ADC by the converse of the Hinge Theorem.

B. Then $\overline{BD} \cong \overline{CD}$ by the definition of midpoint. Also, $\overline{AD} \cong \overline{AD}$ by the reflexive property.

C. This contradiction shows that the temporary assumption that $AB < AC$ is false.

D. But this contradicts the given statement that ≥ ADB ≅ ≥ ADC.

E. Because $\overline{AD}$ is a median of $\triangle ABC$, D is the midpoint of $\overline{BC}$.

F. Temporarily assume that $AB < AC$.

16. Indirect Proof There are two cases to consider for the proof in Exercise 15. Write an indirect proof for Case 2.

LESSON 5.6