Name _____ Date _____

LESSON 4.4

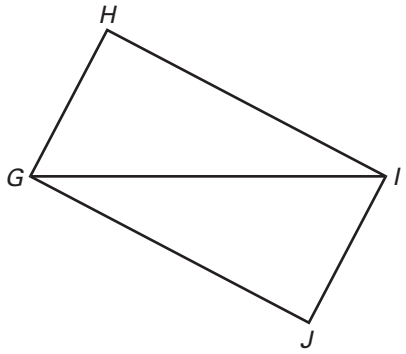
LESSON 4.4

Practice A

For use with pages 250–257

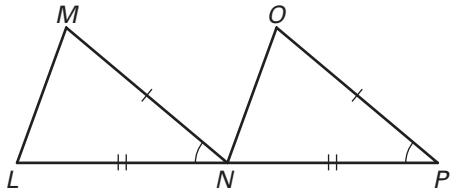
Use the diagram to name the included angle between the given pair of sides.

1. $\overline{GH}$ and $\overline{HI}$
2. $\overline{HI}$ and $\overline{IG}$
3. $\overline{IG}$ and $\overline{HG}$
4. $\overline{GI}$ and $\overline{IJ}$
5. $\overline{JG}$ and $\overline{IG}$
6. $\overline{IJ}$ and $\overline{GJ}$

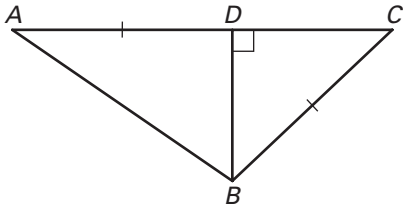


Decide whether enough information is given to prove that the triangles are congruent using the SAS Congruence Postulate.

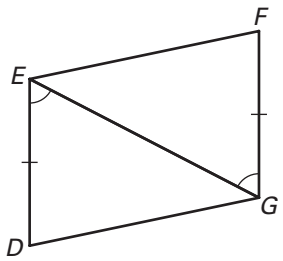
7. $\triangle LMN$, $\triangle NOP$



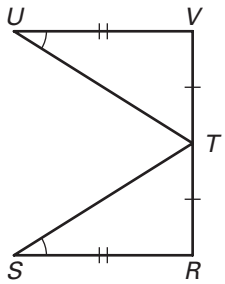
8. $\triangle ABD$, $\triangle CBD$



9. $\triangle DEG$, $\triangle FGE$



10. $\triangle RST$, $\triangle VUT$



Name _____ Date _____

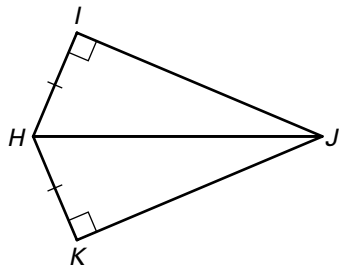
LESSON 4.4

Practice A *continued*

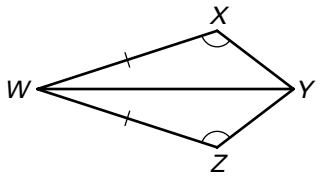
For use with pages 250–257

Decide whether enough information is given to prove that the triangles are congruent using the HL Congruence Theorem.

11. $\triangle HIJ, \triangle HKJ$



12. $\triangle WXY, \triangle WZY$



State the third congruence that must be given to prove that $\triangle ABC \cong \triangle DEF$ using the indicated postulate or theorem.

13. **GIVEN:** $\angle B \cong \angle E, \overline{BC} \cong \overline{EF}$, ___?___ $\cong$ ___?___

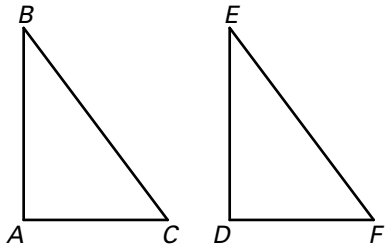
Use the SAS Congruence Postulate.

14. **GIVEN:** $\overline{AB} \cong \overline{DE}, \overline{BC} \cong \overline{EF}$, ___?___ $\cong$ ___?___

Use the SSS Congruence Postulate.

15. **GIVEN:** $\overline{AC} \cong \overline{DF}$, $\angle A$ is a right angle and $\angle A \cong \angle D$, ___?___ $\cong$ ___?___

Use the HL Congruence Theorem.



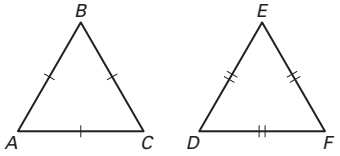
16. **Skateboards** Suppose you have two skateboard ramps. What information do you need to know to prove that the triangular ramps are congruent using SAS? using HL?

Statements	Reasons
6. $\overline{AF} \cong \overline{EC}$	**6.** Definition of congruent segments
7. $\triangle AFB \cong \triangle CEB$	**7.** SSS Congruence Postulate

4.

Statements	Reasons
1. $\triangle ZWV \cong \triangle YXV$	**1.** Given
2. $\overline{ZW} \cong \overline{YX}$ $\overline{VZ} \cong \overline{VY}$ $\overline{WV} \cong \overline{XV}$	**2.** Definition of congruent triangles
3. $WV + VY = WY$ $XV + VZ = XZ$	**3.** Segment Addition Postulate
4. $WV = XV$; $VZ = VY$	**4.** Definition of Congruent Segments
5. $XV + VZ = WY$	**5.** Substitution property of equality
6. $WY = XZ$	**6.** Substitution property of equality
7. $\overline{WY} \cong \overline{XZ}$	**7.** Definition of congruent segments
8. $\overline{ZY} \cong \overline{ZY}$	**8.** Reflexive prop. of congruence
9. $\triangle ZWY \cong \triangle YXZ$	**9.** SSS Congruence Postulate

5. The diagram shows two equilateral triangles, $\triangle ABC$ and $\triangle DEF$. If one side of $\triangle ABC$ is congruent to one side of $\triangle DEF$, such as $\overline{AB} \cong \overline{DE}$, then you know that the triangles are congruent because equilateral triangles have three congruent sides.



6. $J(3, 9)$, $K(7, 8)$

Lesson 4.4

Practice Level A

1. $\angle GHI$ **2.** $\angle HIG$ **3.** $\angle IGH$ **4.** $\angle GIJ$ **5.** $\angle JGI$ **6.** $\angle IJG$ **7.** enough **8.** not enough **9.** enough **10.** not enough **11.** enough **12.** not enough **13.** $\overline{AB}$; $\overline{DE}$ **14.** $\overline{AC}$; $\overline{DF}$ **15.** $\overline{BC}$; $\overline{EF}$ **16.** Two sides and the included angle of one ramp need to be congruent to the corresponding sides and angle of the second ramp; the two ramps need to be right triangles with congruent hypotenuses and one pair of congruent corresponding legs.

Practice Level B

1. $\angle ABC$ **2.** $\angle BCD$ **3.** $\angle ABD$ **4.** $\angle BDA$ **5.** $\angle DAB$ **6.** $\angle CDB$ **7.** not enough **8.** enough **9.** not enough **10.** Yes, SAS Congruence Postulate **11.** Yes, HL Congruence Theorem **12.** not enough **13.** $\overline{RM} \cong \overline{FB}$ **14.** $\angle J \cong \angle D$ **15.** $\overline{JM} \cong \overline{DB}$ or $\overline{JR} \cong \overline{DF}$ **16.** Given; $\overline{AB} \cong \overline{BE}$; Given; $\overline{CB} \cong \overline{BD}$; Vertical Angles Theorem; SAS Congruence Postulate **17.** Given; Alternate Interior Angles Theorem; Given; Reflexive Property of Congruence; SAS Congruence Postulate

Practice Level C

1. not enough **2.** enough; HL **3.** not enough **4.** enough; SAS **5.** $\angle BCA$; $\angle EDF$ **6.** $\overline{BC}$; $\overline{ED}$ **7.** $\overline{AC}$; $\overline{FD}$ **8.** They are congruent by SAS.

9. Definition of perpendicular lines; $\triangle PRS$ and $\triangle QSR$ are right triangles; Reflexive Property of Congruence; HL Congruence Theorem

10. $\angle OML$ and $\angle OMN$ are right angles; $\angle OML \cong \angle OMN$; Given; Reflexive Property of Congruence; SAS Congruence Postulate

Review for Mastery

1. Yes; You are given that two sides and the included angle of one triangle are congruent to two sides and the included angle of another triangle.

2. Yes; $\angle JKN$ and $\angle MKL$ are congruent because they are vertical angles. So you have two sides and the included angle of one triangle that are congruent to two sides and the included angle of another triangle. **3.** No; You have two sides in $\triangle WXY$ that are congruent to two sides in $\triangle ZXY$, but the angle in $\triangle ZXY$ is not the included angle.

4.

	Statements	Reasons
H	**1.** $\overline{AB} \cong \overline{DB}$	**1.** Given
	2. $\overline{BC} \perp \overline{AD}$	**2.** Given
	3. $\angle ACB$ and $\angle DCB$ are right angles.	**3.** Def. of $\perp$ lines
	4. $\triangle ABC$ and $\triangle DCB$ are right triangles.	**4.** Def. of a right triangle
L	**5.** $\overline{BC} \cong \overline{BC}$	**5.** Reflexive Property of Congruence
	6. $\triangle ABC \cong \triangle DBC$	**6.** HL Congruence Theorem