Answer Key

Lesson 4.5

Challenge Practice



Proofs will vary.

Proofs will vary.



The two triangles in the figure have two sets of congruent sides measuring 15 centimeters and 13 centimeters. They also each have a non-included angle congruent. However, from the diagram you can see that the larger triangle has a base of 14 centimeters and the smaller triangle has a base of 4 centimeters. Because these measures are not congruent, the triangles are not congruent.

4. The SSA case is valid when the non-included angle is a right angle because then the hypotenuse and leg of the first triangle would be congruent to the hypotenuse and leg of the second triangle. Using the HL Congruence Theorem, you can conclude that the two triangles are congruent.

5.	
Statements	Reasons
1. $\overline{AE} \parallel \overline{BF}, \overline{CE} \parallel \overline{DF}$	1. Given
2. $\angle EAF \cong \angle FBD$	2. Corresponding Angles Postulate
3. $\overline{AB} \cong \overline{CD}$	3. Given
4. $AB = CD$	4. Definition of
	congruent segments
5. $AC = AB + BC$	5. Segment Addition
BD = BC + CD	Postulate
6. AC = CD + BC	6. Substitution property
	of equality
7. $AC = BD$	7. Substitution property
	of equality
Statements	Reasons
8. $\overline{AC} \cong \overline{BD}$	8. Definition of
	congruent segments

9. $\angle FDB \cong \angle ECA$	9. Corresponding Angles Postulate
10. $\triangle AEC \cong \triangle BFD$	10. ASA Congruence Postulate
6.	
Statements	Reasons
1. $\angle KNL \cong \angle MNL$,	1. Given
$\angle KLN \cong \angle MLN$	
2. $\overline{NL} \cong \overline{NL}$	2. Reflexive
	property of
	congruence
3. $\triangle KNL \cong \triangle MNL$	3. ASA Congruence Postulate
4. $NK \cong NM$	4. Corresponding
	parts of congruent triangles are
	congruent
5. $m \angle JNK + m \angle KNL$	5. Linear Pair
$= 180^{\circ},$	Postulate
$m \angle JNM + m \angle MNL$	
$= 180^{\circ}$	
6. $m \angle JNK + m \angle KNL$	6. Transitive
$= m \angle JNM +$	property of
$m \angle MNL$	equality
7. $m \angle KNL = m \angle MNL$	7. Definition of
	congruent angles
8. $m \angle JNK + m \angle KNL$	8. Substitution
$= m \angle JNM +$	property of
$m \angle K N L$	equality • Subtraction
9. $m \angle JNK = m \angle JNM$	9. Subtraction
	property of
10 / $DNK \simeq / DNM$	10 Definition of
10. $\angle JIMK = \angle JIMM$	congruent angles
11 $\overline{IN} \simeq \overline{IN}$	11 Reflexive property of congruence
11. $JIV = JIV$ 12 $\land INK \simeq \land INM$	12 SAS Congruence Postulate