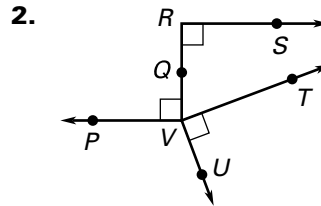
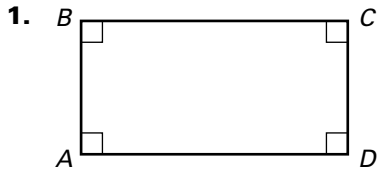


**LESSON 2.7**

**Practice A**

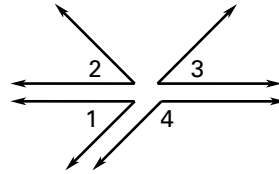
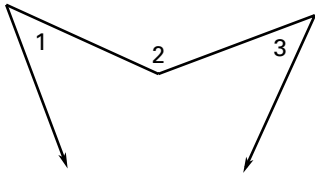
For use with pages 123–133

Identify the pair(s) of congruent angles in the figure. Explain how you know they are congruent.



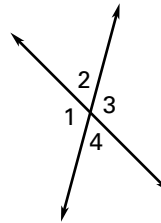
3.  $\angle 1$  and  $\angle 3$  are complementary.  
 $\angle 1$  and  $\angle 2$  are supplementary.  
 $\angle 3$  and  $\angle 2$  are supplementary.

4.  $\angle 1$  and  $\angle 2$  are complementary.  
 $\angle 2$  and  $\angle 3$  are complementary.  
 $\angle 2$  and  $\angle 4$  are supplementary.

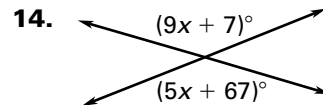
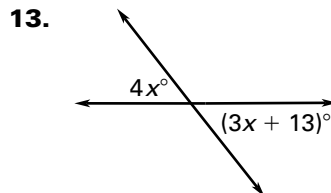
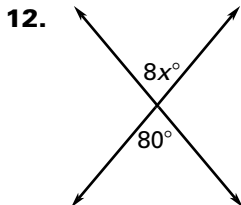
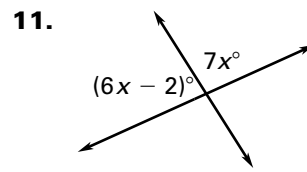
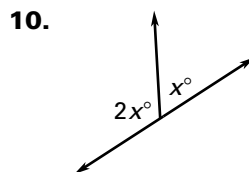
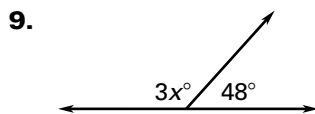


Use the diagram at the right.

5. If  $m\angle 1 = 115^\circ$ , find  $m\angle 2$ ,  $m\angle 3$ , and  $m\angle 4$ .  
 6. If  $m\angle 2 = 64^\circ$ , find  $m\angle 1$ ,  $m\angle 3$ , and  $m\angle 4$ .  
 7. If  $m\angle 3 = 112^\circ$ , find  $m\angle 1$ ,  $m\angle 2$ , and  $m\angle 4$ .  
 8. If  $m\angle 4 = 67^\circ$ , find  $m\angle 1$ ,  $m\angle 2$ , and  $m\angle 3$ .



Find the value of  $x$ . Explain why your answer is reasonable.

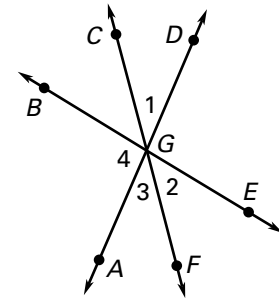


**LESSON**  
**2.7**

**Practice A** *continued*

*For use with pages 123–133*

**In the diagram at the right,  $m\angle 1 = 38^\circ$  and  $m\angle 4 = 98^\circ$ . Find the indicated angle measure.**



15. Find  $m\angle 3$ .

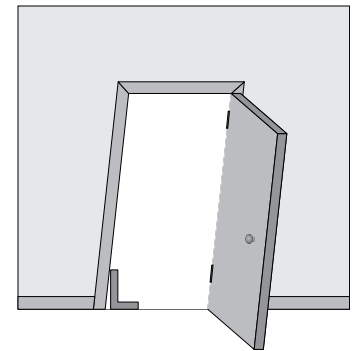
16. Find  $m\angle DGE$ .

17. Find  $m\angle CGE$ .

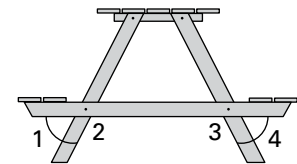
18. Find  $m\angle 2$ .

19. Find  $m\angle AGC$ .

**20. Door Frame** You are using a carpenter's square to check whether a corner of a door frame forms a right angle. The square is basically a ruler in the form of a right angle. When you try to fit the square into the corner, there is a gap as shown in the figure. *Explain* whether there is a right angle in this corner by using a theorem from this section.



**21. Picnic table** The figure shows the side view of a picnic table. Given that  $\angle 1 \cong \angle 4$ , complete the proof showing that  $\angle 2 \cong \angle 3$ .



**GIVEN:**  $\angle 1 \cong \angle 4$

**PROVE:**  $\angle 2 \cong \angle 3$

**Statements**

**Reasons**

1.  $\angle 1 \cong \angle 4$

1. ?

2.  $\angle 1$  and ? are a linear pair.  
 $\angle 3$  and ? are a linear pair.

2. ?

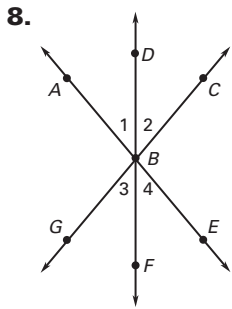
3. ?  
?

3. Linear Pair Postulate

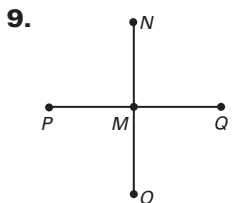
4.  $\angle 2 \cong \angle 3$

4. ?

### Lesson 2.6, continued



Statements	Reasons
1. $\overrightarrow{BD}$ bisects $\angle ABC$ .	1. Given
2. $\angle 1 \cong \angle 2$	2. Definition of angle bisector
3. $m\angle 1 = m\angle 2$	3. Definition of congruent angles
4. $m\angle 2 = m\angle 3$	4. Measures of vertical angles are equal.
5. $m\angle 1 = m\angle 3$	5. Transitive Property of Equality
6. $m\angle 1 = m\angle 4$	6. Measures of vertical angles are equal.
7. $m\angle 3 = m\angle 4$	7. Substitution Property of Equality
8. $\overrightarrow{BF}$ bisects $\angle EBG$ .	8. Definition of angle bisector



Statements	Reasons
1. $\overline{NO} \cong \overline{PQ}$ , $M$ is the midpoint of $\overline{NO}$ , $M$ is the midpoint of $\overline{PQ}$ .	1. Given
2. $NO = PQ$	2. Definition of congruent segments
3. $NM = MO$ , $PM = MQ$	3. Definition of midpoint
4. $NO = NM + MO$ , $PQ = PM + MQ$	4. Segment Addition Postulate
5. $NM + MO = PM + MQ$	5. Substitution Property of Equality
6. $NM + NM = PM + PM$	6. Substitution Property of Equality
7. $2NM = 2PM$	7. Simplify.
8. $NM = PM$	8. Division Property of Equality

Statements	Reasons
9. $\overline{NM} \cong \overline{PM}$	9. Definition of congruent segments

### Lesson 2.7

#### Practice Level A

- $\angle A$ ,  $\angle B$ ,  $\angle C$ , and  $\angle D$  are all congruent by the Right Angles Congruence Theorem.
- $\angle QRS$ ,  $\angle PVQ$ , and  $\angle TVU$  are all congruent by the Right Angles Congruence Theorem.
- $\angle 1 \cong \angle 3$  by the Congruent Supplements Theorem, because both angles are supplementary to  $\angle 2$ .
- $\angle 1 \cong \angle 3$  by the Congruent Complements Theorem, because both angles are complementary to  $\angle 2$ .
- $65^\circ$ ,  $115^\circ$ ,  $65^\circ$
- $116^\circ$ ,  $116^\circ$ ,  $64^\circ$
- $112^\circ$ ,  $68^\circ$ ,  $68^\circ$
- $113^\circ$ ,  $67^\circ$ ,  $113^\circ$
- 44
- 60
- 14
- 10
- 13
- 15
- $38^\circ$
- $98^\circ$
- $136^\circ$
- $44^\circ$
- $142^\circ$
- The gap shows that the right angle of the carpenter's square is not congruent to the corner of the door frame. The Right Angle Congruence Theorem states that all right angles are congruent, so the corner of the door frame is not a right angle.
- Given;  $\angle 2$ ;  $\angle 4$ ; Definition of linear pair;  $\angle 1$  and  $\angle 2$  are supplementary;  $\angle 3$  and  $\angle 4$  are supplementary; Congruent Supplements Theorem

#### Practice Level B

- false
  - true
  - false
  - true
- 5–10. Sample sketches are given.

