

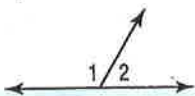
2-8

# Skills Practice

## Proving Angle Relationships

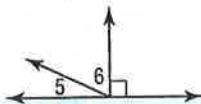
Find the measure of each numbered angle.

1.  $m\angle 2 = 57$



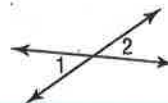
$m\angle 1 = 123$

2.  $m\angle 5 = 22$



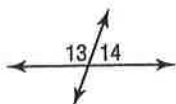
$m\angle 6 = 68$

3.  $m\angle 1 = 38$



$m\angle 2 = 38$

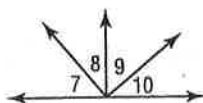
4.  $m\angle 13 = 4x + 11$ ,  
 $m\angle 14 = 3x + 1$



$m\angle 13 = 107$

$m\angle 14 = 73$

5.  $\angle 9$  and  $\angle 10$  are complementary.  
 $\angle 7 \cong \angle 9$ ,  $m\angle 8 = 41$

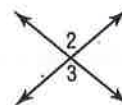


$m\angle 7 = 49$

$m\angle 9 = 49$

$m\angle 10 = 41$

6.  $m\angle 2 = 4x - 26$ ,  
 $m\angle 3 = 3x + 4$



$m\angle 2 = 94$

$m\angle 3 = 94$

Determine whether the following statements are *always*, *sometimes*, or *never* true.

7. Two angles that are supplementary form a linear pair.

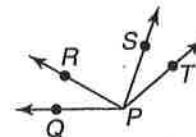
8. Two angles that are vertical are adjacent.

9. Copy and complete the following proof.

Given:  $\angle QPS \cong \angle TPR$

Prove:  $\angle QPR \cong \angle TPS$

Proof:



Statements

Reasons

a.  $\angle QPS \cong \angle TPR$

a. Given

b.  $m\angle QPS = m\angle TPR$

b. Def of  $\cong$   $\angle$ 's

c.  $m\angle QPS = m\angle QPR + m\angle RPS$ <sup>1)</sup>  
 $m\angle TPR = m\angle TPS + m\angle RPS$ <sup>2)</sup>

c. Angle Add. Post.

d.  $m\angle QPR + m\angle RPS =$   
 $m\angle TPS + m\angle RPS$

d. Substitution

e.  $m\angle QPR = m\angle TPS$

e. Subtraction Prop.

f.  $\angle QPR \cong \angle TPS$

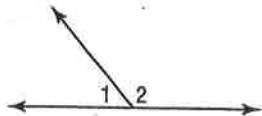
f. Def of  $\cong$   $\angle$ 's

# 2-8 Practice

## Proving Angle Relationships

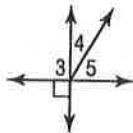
Find the measure of each numbered angle.

1.  $m\angle 1 = x + 10$   
 $m\angle 2 = 3x + 18$



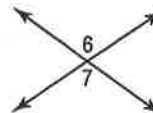
$m\angle 1 = 48$   
 $m\angle 2 = 132$

2.  $m\angle 4 = 2x - 5$   
 $m\angle 5 = 4x - 13$



$m\angle 3 = 90$   
 $m\angle 4 = 31$   
 $m\angle 5 = 59$

3.  $m\angle 6 = 7x - 24$   
 $m\angle 7 = 5x + 14$



$m\angle 6 = 109$   
 $m\angle 7 = 109$

Determine whether the following statements are *always*, *sometimes*, or *never* true.

4. Two angles that are supplementary are complementary.

*never*

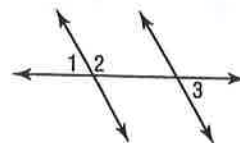
5. Complementary angles are congruent.

*Sometimes*

6. Write a two-column proof.

**Given:**  $\angle 1$  and  $\angle 2$  form a linear pair.  
 $\angle 2$  and  $\angle 3$  are supplementary.

**Prove:**  $\angle 1 \cong \angle 3$



Statements	Reasons
1. $\angle 1$ & $\angle 2$ form linear pair, $\angle 2$ & $\angle 3$ suppl.	Given
2. $\angle 1$ & $\angle 3$ suppl.	Suppl. thm
3. $\angle 1 \cong \angle 3$	$\angle$ 's suppl to same $\angle$ or $\cong \angle$ s are $\cong$

7. **STREETS** Refer to the figure. Barton Road and Olive Tree Lane form a right angle at their intersection. Tryon Street forms a  $57^\circ$  angle with Olive Tree Lane. What is the measure of the acute angle Tryon Street forms with Barton Road?

*33*

