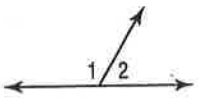
NAME Key DATE _____ PERIOD _____

2-8 Skills Practice

Proving Angle Relationships

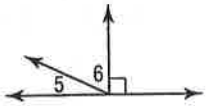
Find the measure of each numbered angle.

1. $m\angle 2 = 57$



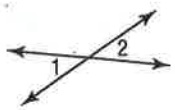
$m\angle 1 = 123$

2. $m\angle 5 = 22$



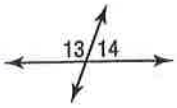
$m\angle 6 = 68$

3. $m\angle 1 = 38$



$m\angle 2 = 38$

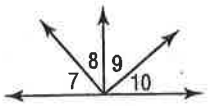
4. $m\angle 13 = 4x + 11$, $m\angle 14 = 3x + 1$



$m\angle 13 = 107$

$m\angle 14 = 73$

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

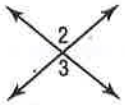


$m\angle 7 = 49$

$m\angle 9 = 49$

$m\angle 10 = 41$

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. sometimes

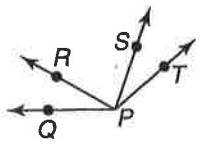
8. Two angles that are vertical are adjacent. never

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. $m\angle QPS = m\angle QPR + m\angle RPS$ 1) $m\angle TPR = m\angle TPS + m\angle RPS$ 2)	c. Angle Add. Post.
d. 1) $m\angle QPR + m\angle RPS =$ 2) $m\angle TPS + m\angle RPS$	d. Substitution
e. $m\angle QPR = m\angle TPS$	e. Subtraction Prop.
f. $\angle QPR \cong \angle TPS$	f. Def of $\cong$ $\angle$'s

NAME _____ DATE _____ PERIOD ____

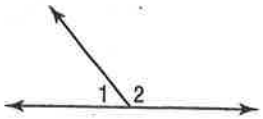
2-8

Practice

Proving Angle Relationships

Find the measure of each numbered angle.

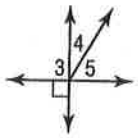
1. $m\angle 1 = x + 10$
   $m\angle 2 = 3x + 18$



m∠1 = 48

m∠2 = 132

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

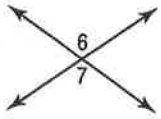


m∠3 = 90

m∠4 = 31

m∠5 = 59

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



m∠6 = 109

m∠7 = 109

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

4. Two angles that are supplementary are complementary.

never

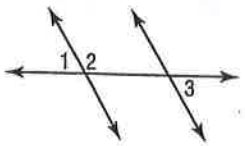
5. Complementary angles are congruent.

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. ∠1 & ∠2 form linear pair, ∠2 & ∠3 supp.	Given
2. ∠1 & ∠2 suppl.	Supp. thm
3. ∠1 ≅ ∠3	∠'s Supp to same ∠ or ≅ ∠s are ≅

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

33