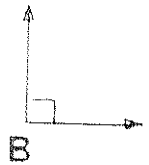
Theorem

All right angles are congruent.

Given: $\angle A$ and $\angle B$ are right angles



Prove: $\angle A \cong \angle B$

Statements	*Reasons*

$m\angle A = m\angle B$

Definition of right angles

$\angle A$ and $\angle B$ are right angles

Substitution PE

$\angle A \cong \angle B$

Given

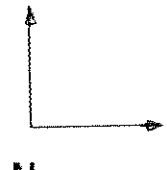
Definition of congruent

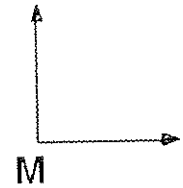
$m\angle A = 90°$

$m\angle B = 90°$

Theorem

If two angles are congruent and supplementary, then each is a right angle





Given: $\angle M \cong \angle N$

$\angle M$ and $\angle N$ are supplementary

Prove: $\angle M$ and $\angle N$ are right angles

Statements	*Reasons*

$2m\angle M = 180°$ Substitution Property of Equality

Definition of supplementary

$m\angle N = 90°$

Definition of congruent

$\angle M$ and $\angle N$ are right angles

Definition of right angles

$\angle M$ and $\angle N$ are supplementary
$\angle M \cong \angle N$

$m\angle M + m\angle N = 180°$

Combine like terms

$m\angle M = m\angle N$

Given

Division Property of Equality

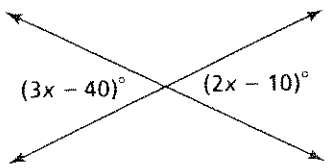
$m\angle M = 90°$

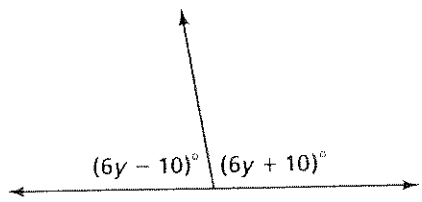
Substitution Property of Equality

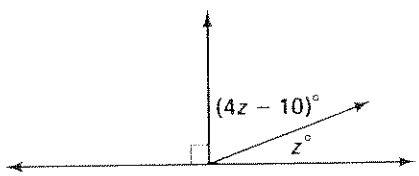
$m\angle M + m\angle M = 180°$

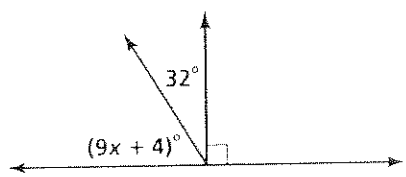
Practice 2-5

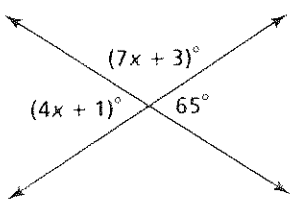
Find the values of the variables. Then find the measures of each labeled angle.

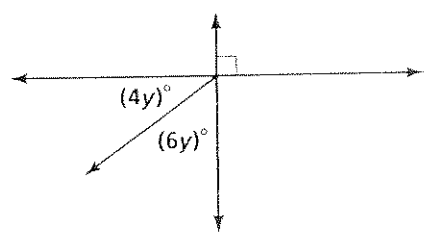
1. 

2. 

3. 

4. 

5. 

6. 

Find the measure of each angle by setting up and solving an algebraic equation.

7. $\angle A$ is three times as large as its supplement, $\angle B$.

8. $\angle A$ is one fourth as large as its supplement, $\angle B$.

9. $\angle A$ is five times as large as its complement, $\angle B$.

10. $\angle A$ is one eighth as large as its complement, $\angle B$.