8. Vertical Angles are Congruent: $x + 90 = 4x$

Subtraction: $90 = 3x$

Division: $30 = x$

12. a. Vertical Angles are Congruent

b. $< 1 = < 6$

c. Vertical Angles are Congruent

d. Substitution Property

16. Vertical Angles are Congruent: $x + 10 = 4x - 35$ $x + 10 = 15 + 10 = 25$

Subtraction: $45 = 3x$ $4x - 35 = 4(15) - 35 = 25$

Division: $15 = x$

18. a. $<Y$

b. (Definition of) Right Angles

c. $m<Y$

d. $<X \cong <Y$

26. "$<A$ is twice as large as its complement, $<B$" Means that $m<A = 2m<B$, and $m<A + m<B = 90$

Substitution: $2m<B + m<B = 90$; Addition: $3m<B = 90$ Division: $m<B = 30^o$

Since $m<A = 2m<B$, $m<A = 2(30) = 60^o$

30. Given: *<1 and <2 are supplementary*

<3 and <4 are supplementary

<2 $\cong$ *<4*

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

Statements	Reasons
1. *<1 and <2 are supplementary* *<3 and <4 are supplementary* *<2 ≅ <4*	1. Given
2. *<3 and <2 are supplementary*	2. Substitution Property
3. *<1 ≅ <3*	3. Two angles supplementary to the same angle are congruent

34. Vertical Angles are congruent: $y = 2x$

Angles that form a Linear Pair are Supplementary: $x + y + 5 + 2x = 180$

Substitution Property: $x + 2x + 5 + 2x = 180$

Addition of Like Terms: $5x + 5 = 180$

Subtraction Property of Equality: $5x = 175$ Division Property of Equality: $x = 35$

Since $y = 2x$, $y = 2\ (35) = 70$