EXTRA PRACTICE 17
Solving Problems Using Systems of Equations
Use after Section 3.3 **Name**_____

Example: The sum of two numbers is 95. One number is 16 less than twice the other. Find the numbers.

We let x represent one number and y represent the other number.

We solve the following system.

$x + y = 95$,
$x = 2y - 16$.

Using the substitution method, we substitute $2y - 16$ for x.

$x + y = 95$	Then substitute 37 for y and solve for x.
$(2y - 16) + y = 95$	$x = 2y - 16$
$3y - 16 = 95$	$x = 2 \cdot 37 - 16$
$3y = 111$	$x = 58$
$y = 37$	One number is 58, the other is 37.

This system could also have been solved using the elimination method.

$$\begin{aligned} x + y &= 95 \\ x &= 2y - 16 \end{aligned} \quad \text{or} \quad \begin{aligned} x + y &= 95 \\ x - 2y &= -16 \end{aligned} \quad \text{or} \quad \begin{aligned} x + y &= 95 \\ -x + 2y &= 16 \\ \hline 3y &= 111 \\ y &= 37 \end{aligned}$$

Then substitute 37 for y and solve for x.

Solve.

1. Find two numbers whose sum is 49 and whose difference is 13. _____

2. Two angles are supplementary. One angle is 60° more than twice the other. Find the angles. _____

3. Two angles are complementary. Their difference is 36°. Find the angles. _____

4. The perimeter of a rectangle is 160 cm. The length is 4 cm less than three times the width. Find the length and the width. _____

EXTRA PRACTICE 17 (continued)
Solving Problems Using Systems of Equations
Use after Section 3.3

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5. The sum of two numbers is -11. Twice the first number minus the second is 32. Find the numbers. _____

6. The difference between two numbers is 14. Twice the smaller is 7 more than the larger. What are the numbers? _____

7. The perimeter of a lot is 84 ft. The length exceeds the width by 16 feet. Find the length and the width. _____

8. The sum of a certain number and a second number is 21. The second number minus the first number is -57. Find the numbers. _____

9. The perimeter of a rectangular field is 110 feet. The length is 7 feet more than twice the width. Find the dimensions. _____

10. Two angles are complementary. One angle is 10° less than three times the other. Find the measures of the angles. _____