7-4

Show all work on looseleaf
None of these are one of the special cases
where the variable "goes away."
Use an SPF 25 or greater sunscreen.
Check your rearview mirrors frequently.

Example **Determine the best method to solve the system of equations. Then solve the system.**

$6x + 2y = 20$
$-2x + 4y = -16$

Since the coefficients of x will be additive inverses of each other if you multiply the second equation by 3, use elimination.

$$\begin{array}{rl} 6x + 2y = & 20 \\ (+) \ -6x + 12y = & -48 \\ \hline 14y = & -28 \\ \dfrac{14y}{14} = & \dfrac{-28}{14} \\ y = & -2 \end{array}$$

Multiply the second equation by 3.
Add the two equations. x is eliminated.
Divide each side by 14.
Simplify.

$6x + 2(-2) = 20$ Substitute -2 for y in either equation.
$6x - 4 = 20$ Simplify.
$6x - 4 + 4 = 20 + 4$ Add 4 to each side.
$6x = 24$ Simplify.
$\dfrac{6x}{6} = \dfrac{24}{6}$ Divide each side by 6.
$x = 4$ Simplify.

The solution is $(4, -2)$.

Exercises

Determine the best method to solve each system of equations. Then solve the system.

1. $x + 2y = 3$
$x + y = 1$

2. $m + 6n = -8$
$m = 2n + 8$

3. $a - b = 6$
$a = 2b + 7$

4. $4x + y = 15$
$-x - 3y = -12$

5. $3c - d = 14$
$c - d = 2$

6. $x + 2y = -9$
$y = 4x$

7. $4x = 2y - 10$
$x + 2y = 5$

8. $x = -2y$
$4x + 4y = -10$

9. $2s - 3t = 42$
$3s + 2t = 24$

10. $4a - 4b = -10$
$2a + 4b = -2$

11. $4x + 10y = -6$
$-2x - 10y = 2$

12. $2x = y - 3$
$-x + y = 0$