**5-4B Lesson Master**

**SKILLS** Objective A

In 1–8, solve the system using the linear combination method.

<table>
<thead>
<tr>
<th></th>
<th>Equation 1</th>
<th>Equation 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$4x + y = -12$</td>
<td>$2x + 2y = -15$</td>
</tr>
<tr>
<td>2</td>
<td>$4x + 5y = 3$</td>
<td>$5x - 2y = 2.1$</td>
</tr>
<tr>
<td>3</td>
<td>$2a + b - 5c = -21$</td>
<td>$a + 2b - 2c = -15$</td>
</tr>
<tr>
<td></td>
<td>$a - 4b + c = 18$</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>$8m - 2n = -16$</td>
<td>$2m - 0.5n = -4$</td>
</tr>
<tr>
<td>5</td>
<td>$12x^2 - 5y^2 = 523$</td>
<td>$6x^2 + 2y^2 = 482$</td>
</tr>
<tr>
<td>6</td>
<td>$4x + 5y = -14$</td>
<td>$8x + 10y = -20$</td>
</tr>
<tr>
<td>7</td>
<td>$\frac{1}{4}x - y = -8$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$\frac{1}{2}x + 4y = 14$</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>$d + 9e - f = 13$</td>
<td>$3d + e + 2f = -7$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$2d + e + 2f = -7$</td>
</tr>
</tbody>
</table>

**PROPERTIES** Objective D

In 9 and 10, consider the system $\begin{cases} 5x + 15y = -10 \\ x + 3y = k \end{cases}$.

9. For what value(s) of $k$ will the system have infinitely many solutions? ______________

10. For what value(s) of $k$ will the system be inconsistent? ______________

In 11 and 12, consider the system $\begin{cases} 12x + 6y = k \\ 2x + y = 9 \end{cases}$.

11. For what values of $k$ will the system be inconsistent? ______________

12. For what values of $k$ will the system have infinitely many solutions? ______________

In 13 and 14, consider the system $\begin{cases} -10x + 4y = -9 \\ -5x + 2y = k \end{cases}$.

13. For what value(s) of $k$ will the system have infinitely many solutions? ______________

14. For what value(s) of $k$ will the system be inconsistent? ______________
In 15–18, refer to the system below. While solving the system on a CAS, suppose you have stored the first equation as eq1 and the second equation as eq2. Tell which variable would be eliminated if you entered each of these expressions.

\[
\begin{align*}
5x + 4y &= -0.7 \\
15x + 6y &= -1.2
\end{align*}
\]

15. \(-6\text{eq1} + 4\text{eq2}\)  
16. \(\text{eq1} + -(1/3)\text{eq2}\)  
17. \(-3\text{eq1} + \text{eq2}\)  
18. \(1.5\text{eq1} - \text{eq2}\)

**USES** Objective F


Fabric
Thread

20. At a restaurant, four hamburgers and two orders of fries cost $27.10. Three hamburgers and four orders of fries cost $25.20. If all hamburgers cost the same price and all orders of fries cost the same price, find the cost of each.

Hamburgers
Fries

21. Two apples and six plums provide 300 calories. Three apples and five plums provide 350 calories. How many calories are provided by five apples and eight plums?

22. Three pounds of pears and a pound of grapes cost $4.36. Five pounds of pears and two pounds of grapes cost $7.93. Find the cost of six pounds of pears and four pounds of grapes.

**REVIEW** Lesson 4-3, Objective C

In 23 and 24, calculate the product.

23. \[
\begin{bmatrix}
\frac{3}{4} & 1 \\
3 & -1
\end{bmatrix}
\begin{bmatrix}
8 & 12 \\
0 & -2
\end{bmatrix}
\]

24. \[
\begin{bmatrix}
-3 & -1 \\
2 & 4
\end{bmatrix}
\begin{bmatrix}
0 & 2 & -5 & 0 \\
7 & 1 & -2 & 5
\end{bmatrix}
\]