ACE

Assignment Guide for Problem 2.3

Applications: 23–32 | Connections: 65–74
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Answers to Problem 2.3

A. **1.** $x = \frac{8}{3}$, $y = \frac{7}{6}$

2. $x = -4$, $y = 4$

3. $x = 1$, $y = -\frac{2}{3}$

4. $x = 2$, $y = 2$

B. **1.** Solutions include (1, 12), (3, 11), (5, 10), and so on.

2. Samantha's reasoning makes sense because you are multiplying the expression for total profit by 2 (Distributive Property).

3. $10s + 20c = 250$ has the same solutions as $5s + 10c = 125$.

C. System B is equivalent to System A because we have multiplied both sides of the second equation by 2. Solutions to $8x - 2y = 12$ will be the same as solutions to $4x - y = 6$ and vice versa. Both systems have the solution $x = 2$ and $y = 2$.

D. Applying the linear combination method.
Note: There are always several ways to solve a system by the linear combination method.

1. $\begin{cases} 6x + 6y = 15 \\ 3x - 6y = 12 \end{cases}$ has the solution $x = 3$, $y = -0.5$.

2. $\begin{cases} -4x - 12y = -16 \\ 4x + 5y = 2 \end{cases}$ has the solution $x = -2$, $y = 2$.

3. $\begin{cases} 4x + 2y = 10 \\ 3x - 2y = 15 \end{cases}$ has the solution $x = \frac{25}{7}$, $y = -\frac{15}{7}$.

4. $\begin{cases} -5x + 10y = 25 \\ 5x - 10y = 11 \end{cases}$ has no solutions because the combination leads to $0 = 36$.