



# Elimination

Let's learn how to check our thinking when using elimination to solve systems of equations.

## 16.1 Which Three Go Together: Systems of Equations

Which three go together? Why do they go together?

A

$$\begin{cases} 3x + 2y = 49 \\ 3x + 1y = 44 \end{cases}$$

B

$$\begin{cases} 3y - 4x = 19 \\ -3y + 8x = 1 \end{cases}$$

C

$$\begin{cases} -4y - 2x = 42 \\ -5y + 3x = -9 \end{cases}$$

D

$$\begin{cases} y = x + 8 \\ 3x + 2y = 18 \end{cases}$$



## 16.2 Examining Equation Pairs

1. Here are some equations in pairs. For each equation, find the  $x$ -intercept,  $y$ -intercept, and slope of a graph of the equation.
  - a.  $x + y = 6$  and  $2x + 2y = 12$
  - b.  $3y - 15x = -33$  and  $y - 5x = -11$
  - c.  $5x + 20y = 100$  and  $4x + 16y = 80$
  - d.  $3x - 2y = 10$  and  $4y - 6x = -20$
2. What do you notice about the pairs of equations?
3. Choose one pair of equations and rewrite them into slope-intercept form ( $y = mx + b$ ). What do you notice about the equations in this form?



## 16.3

## Making the Coefficient

For each question,

- What number did you multiply the equation by to get the target coefficient?
- What is the new equation after the original has been multiplied by that value?

1. Multiply the equation  $3x + 4y = 8$  so that the coefficient of  $x$  is 9.
2. Multiply the equation  $8x + 4y = -16$  so that the coefficient of  $y$  is 1.
3. Multiply the equation  $5x - 7y = 11$  so that the coefficient of  $x$  is -5.
4. Multiply the equation  $10x - 4y = 17$  so that the coefficient of  $y$  is -8.
5. Multiply the equation  $2x + 3y = 12$  so that the coefficient of  $x$  is 3.
6. Multiply the equation  $3x - 6y = 14$  so that the coefficient of  $y$  is 3.

