

## ACE Assignment Guide for Problem 4.4



Core 21–26

Other 51–60, 64–67, and unassigned choices from previous problems

**Adapted** For suggestions about adapting ACE exercises, see the CMP *Special Needs Handbook*.

**Connecting to Prior Units 51–56:** *Frogs, Fleas, and Painted Cubes*; *Growing, Growing, Growing*; *Thinking with Mathematical Models*; 57–60: *Say It With Symbols*

## Answers to Problem 4.4

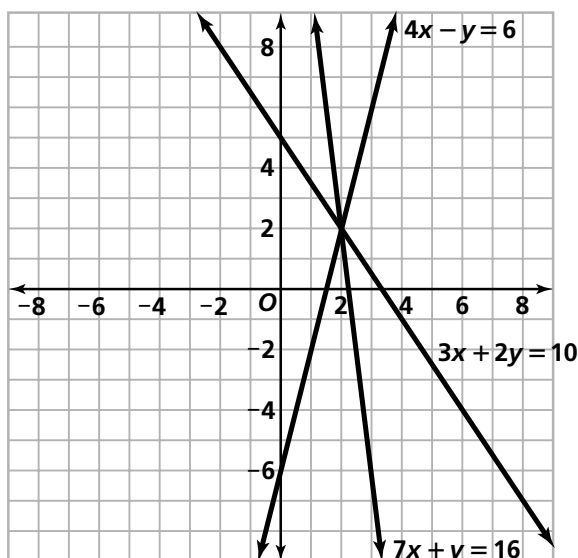
- A. 1.  $6y = 8$  or  $y = \frac{4}{3}$ ,  $x = 5 - 2(\frac{4}{3})$  or  $x = \frac{7}{3}$   
 2.  $3x = -12$  or  $x = -4$ ,  $2(-4) + 3y = 4$  or  $y = 4$   
 3.  $3x = 3$  or  $x = 1$ ,  $2(1) - 3y = 4$  or  $y = -\frac{2}{3}$

- B. 1. We have simply multiplied both sides of the second equation by 2. Every pair  $(x, y)$  satisfying the first equation will satisfy the second and vice versa.

$$2. \begin{cases} 3x + 2y = 10 \\ 8x - 2y = 12 \end{cases}$$

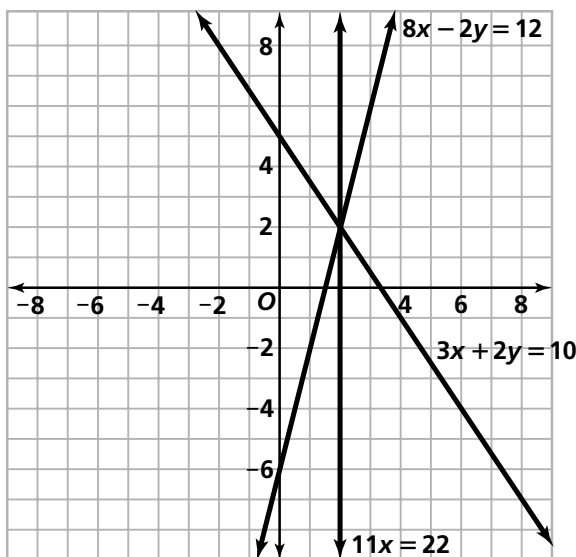
$$\begin{aligned} \text{Therefore, } 11x &= 22 \\ x &= 2 \\ y &= 2 \\ (2, 2) \end{aligned}$$

- C. 1.  $7x + y = 16$



The graph of the new equation intersects the other graphs at their previous point of intersection.

2.



They all intersect at a unique common point.

3. The new equation is  $x = 2$ , which is the  $x$ -coordinate of the solution for the system.

- D. 1. The simplest strategy is probably to multiply the first equation by 3 (though other methods are correct, if less efficient). Then adding the two equations of the new system yields  $9x = 27$ ,  $x = 3$ , and  $y = -0.5$ .  
 2. Here again, multiplying the first equation by 3 is probably the simplest and most efficient transformation to apply. Then subtracting the second equation from the first yields  $5y = 10$ ,  $y = 2$ , and  $x = -2$ .  
 E. 1. Choices of solution method will vary. The solution to each system is listed.  
 a.  $(4, -3)$       b.  $(6\frac{1}{2}, -\frac{3}{4})$   
 c.  $(2, \frac{1}{2})$   
 d. The solution set is infinite. The two equations in the system are equivalent.  
 e. The solution set is infinite. The two equations in the system are equivalent.  
 2. Strategies will vary.  
 F. One might notice that the second equation in each case is an integer multiple of the first.