

# Math 1201: Solving Systems of Equations

# Answer Key

1. Solve by elimination.

A).  $x + 2y = 9$   
 $2x - y = 9$

**Solution (5.4, 1.8)**

B).  $4x + 3y - 5 = 0$   
 $2x - y = -5$

**Solution (-1, 3)**

C).  $5x + 7y = 1$   
 $4x - 2y = 16$

**Solution (3, -2)**

D).  $5x + 3y + 21 = 0$   
 $9x + 7y + 41 = 0$

**Solution (-3, -2)**

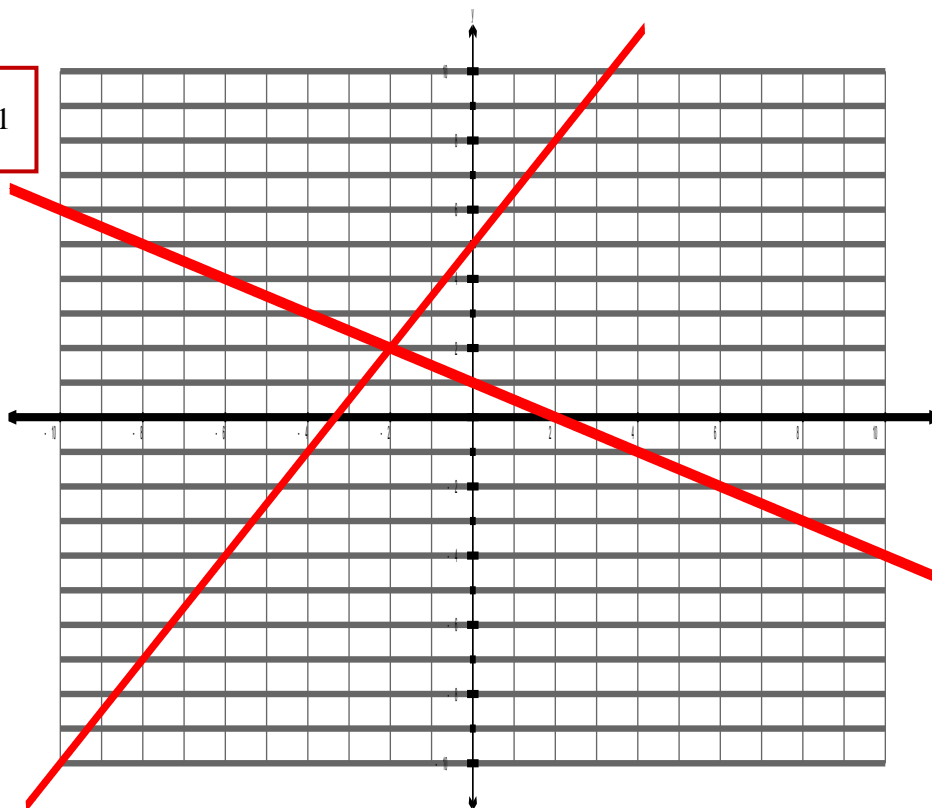
2. Solve by graphing.

A).  $x + 2y = 2$   
 $3x - 2y = -10$

**Slope-intercept form:**  $y = -\frac{1}{2}x + 1$   
 $y = \frac{3}{2}x + 5$

**Solution: (-2, 2)**

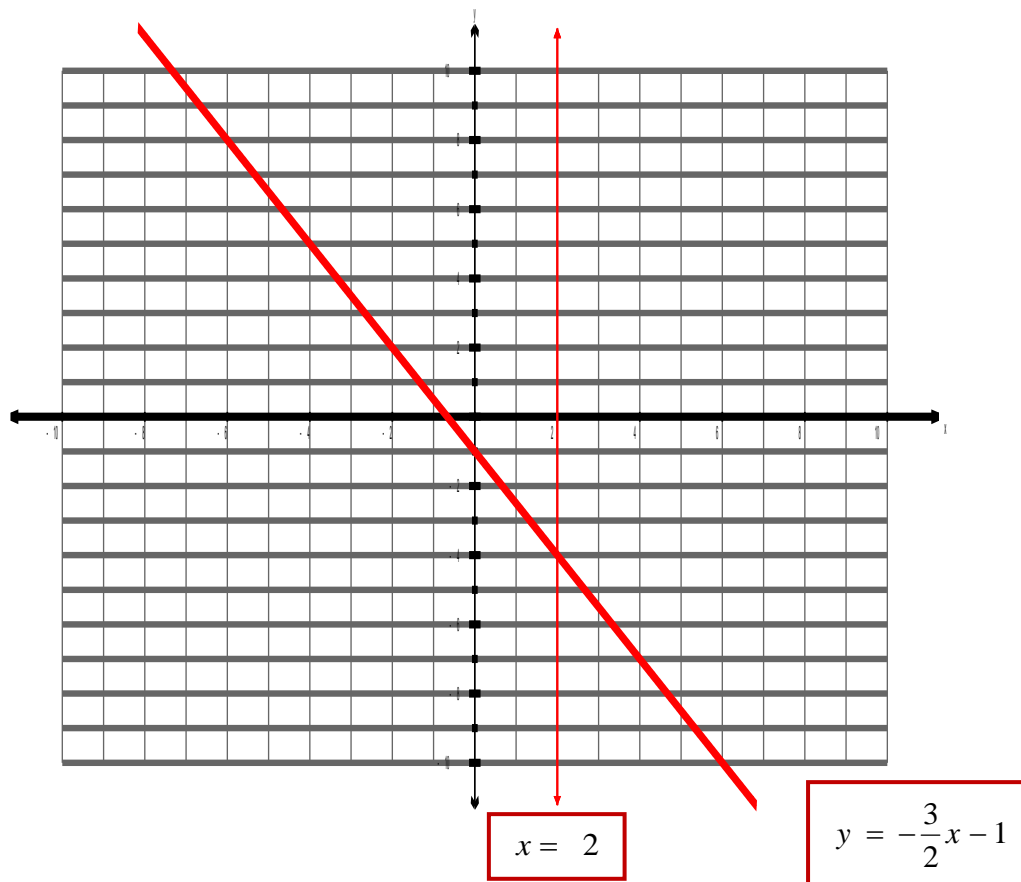
$y = -\frac{1}{2}x + 1$



$y = \frac{3}{2}x + 5$

B).  $3x + 2y = -2$   
 $x = 2$   $\longrightarrow$  **Slope-intercept form:**  $y = -\frac{3}{2}x - 1$   
 $x = 2$

**Solution: (2, -4)**



3. Solve using a method of your choice.

A)  $\frac{7}{2}x + \frac{10}{4}y = 17$

$-\frac{3}{2}x - \frac{15}{2}y = -33$

**Solution: (2, 4)**

B).  $3x - 2y = 4$

$-4y = -6x + 8$

**Coincident Lines  
Infinite Solutions!**

4. Determine the number of solutions of each system.

A).  $2x + 3y = 4$   
 $3x - 2y = 4$



**One Solution**  
**Perpendicular Lines**

B).  $2x + 3y = 4$   
 $4x + 6y = 8$



**Infinite Solutions**  
**Coincident Lines**

C).  $2x + 3y = 4$   
 $4x + 6y = 7$



**No Solution**  
**Parallel Lines**

5. Create a linear system to model this situation:

“A school raised \$140 by collecting 2000 items for recycling. The school received 5 cents for each can and 10 cents for each bottle. ”

$$c + b = 2000$$

$$0.05c + 0.10b = 140$$

b). Using a method of your choice, solve the linear system to determine the number of cans and the number of bottles were recycled.

**Solution: 800 bottles and 1200 cans**