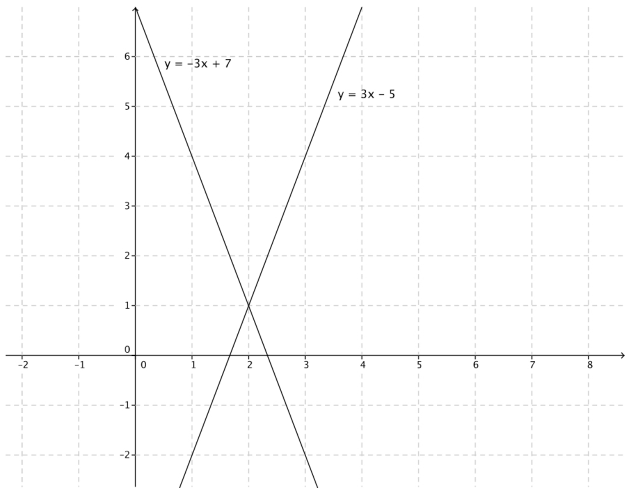
Name ______________________________ Date ______________

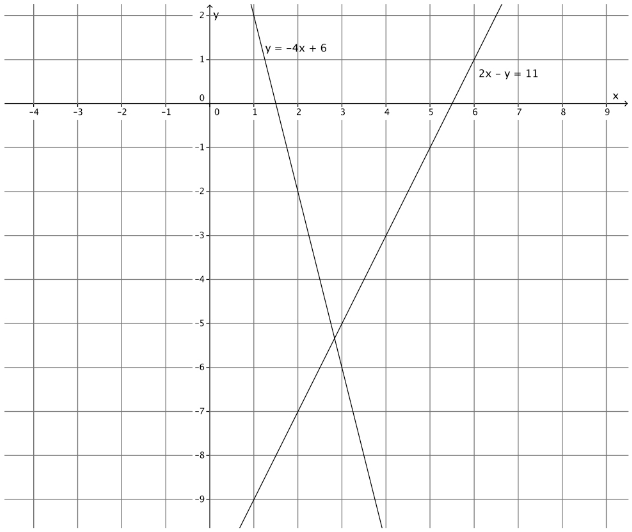
Another Computational Method of Solving a Linear System

Determine the solution, if it exists, for each system of linear equations. Verify your solution on the coordinate plane.

1. $\begin{cases} y = 3x - 5 \\ y = -3x + 7 \end{cases}$



2. $\begin{cases} y = -4x + 6 \\ 2x - y = 11 \end{cases}$



Determine the solution, if it exists, for each system of linear equations. Verify your solution on the coordinate plane.

1. $\begin{cases} \frac{1}{2}x + 5 = y \\ 2x + y = 1 \end{cases}$

2. $\begin{cases} 9x + 2y = 9 \\ -3x + y = 2 \end{cases}$

3. $\begin{cases} y = 2x - 2 \\ 2y = 4x - 4 \end{cases}$

4. $\begin{cases} 8x + 5y = 19 \\ -8x + y = -1 \end{cases}$

5. $\begin{cases} x + 3 = y \\ 3x + 4y = 7 \end{cases}$

6. $\begin{cases} y = 3x + 2 \\ 4y = 12 + 12x \end{cases}$

7. $\begin{cases} 4x - 3y = 16 \\ -2x + 4y = -2 \end{cases}$

8. $\begin{cases} 2x + 2y = 4 \\ 12 - 3x = 3y \end{cases}$

9. $\begin{cases} y = -2x + 6 \\ 3y = x - 3 \end{cases}$

10. $\begin{cases} y = 5x - 1 \\ 10x = 2y + 2 \end{cases}$

11. $\begin{cases} 3x - 5y = 17 \\ 6x + 5y = 10 \end{cases}$

12. $\begin{cases} y = \frac{4}{3}x - 9 \\ y = x + 3 \end{cases}$

13. $\begin{cases} 4x - 7y = 11 \\ x + 2y = 10 \end{cases}$

14. $\begin{cases} 21x + 14y = 7 \\ 12x + 8y = 16 \end{cases}$

Exit Ticket Sample Solutions

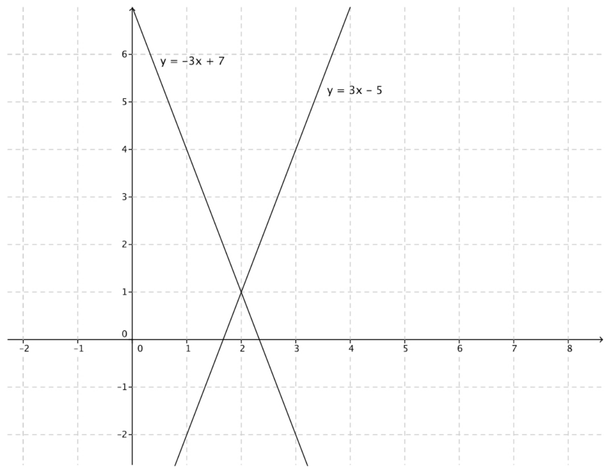
Determine the solution, if it exists, for each system of linear equations. Verify your solution on the coordinate plane.

1. $\begin{cases} y = 3x - 5 \\ y = -3x + 7 \end{cases}$

$$3x - 5 = -3x + 7$$
$$6x = 12$$
$$x = 2$$

$$y = 3(2) - 5$$
$$y = 6 - 5$$
$$y = 1$$

The solution is $(2, 1)$.

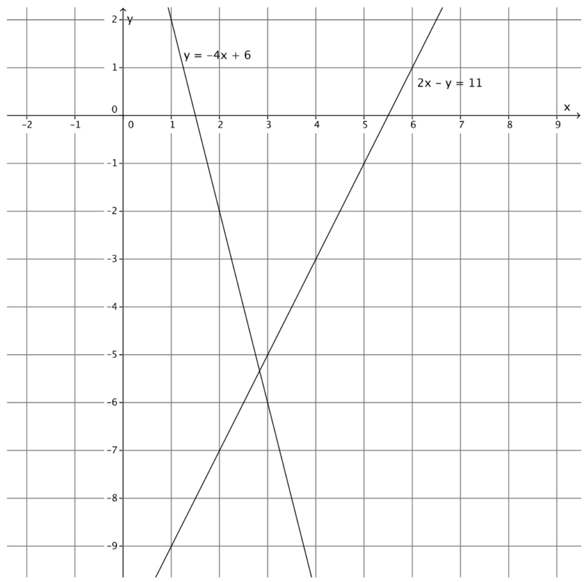


2. $\begin{cases} y = -4x + 6 \\ 2x - y = 11 \end{cases}$

$$2x - (-4x + 6) = 11$$
$$2x + 4x - 6 = 11$$
$$6x = 17$$
$$x = \frac{17}{6}$$

$$y = -4\left(\frac{17}{6}\right) + 6$$
$$y = -\frac{34}{3} + 6$$
$$y = -\frac{16}{3}$$

The solution is $\left(\frac{17}{6}, -\frac{16}{3}\right)$.



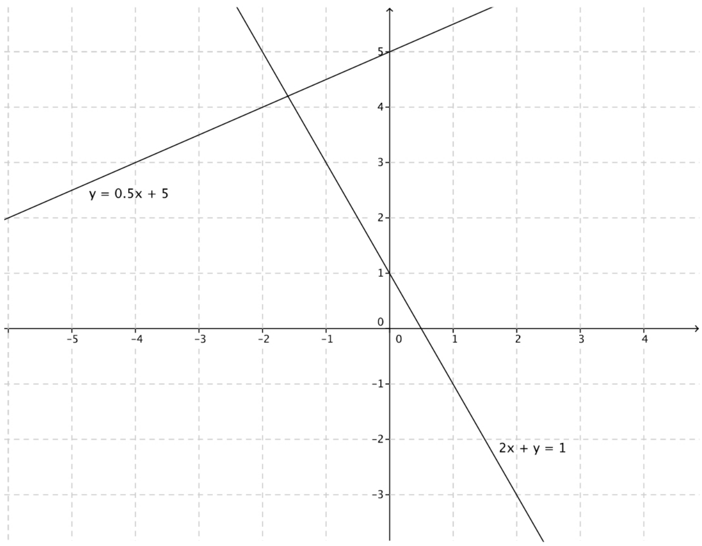
Determine the solution, if it exists, for each system of linear equations. Verify your solution on the coordinate plane.

1. $\begin{cases} \frac{1}{2}x + 5 = y \\ 2x + y = 1 \end{cases}$

$$2x + \frac{1}{2}x + 5 = 1$$
$$\frac{5}{2}x + 5 = 1$$
$$\frac{5}{2}x = -4$$
$$x = -\frac{8}{5}$$

$$2\left(-\frac{8}{5}\right) + y = 1$$
$$-\frac{16}{5} + y = 1$$
$$y = \frac{21}{5}$$

The solution is $\left(-\frac{8}{5}, \frac{21}{5}\right)$.

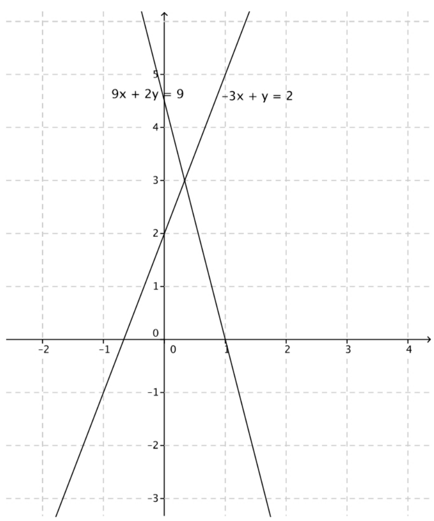


2. $\begin{cases} 9x + 2y = 9 \\ -3x + y = 2 \end{cases}$

$$3(-3x + y = 2)$$
$$-9x + 3y = 6$$
$$\begin{cases} 9x + 2y = 9 \\ -9x + 3y = 6 \end{cases}$$
$$9x + 2y - 9x + 3y = 15$$
$$5y = 15$$
$$y = 3$$

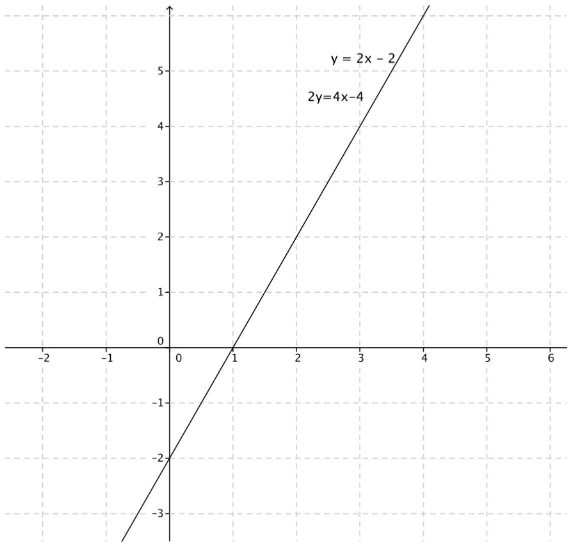
$$-3x + 3 = 2$$
$$-3x = -1$$
$$x = \frac{1}{3}$$

The solution is $\left(\frac{1}{3}, 3\right)$.



3. $\begin{cases} y = 2x - 2 \\ 2y = 4x - 4 \end{cases}$

These equations define the same line. Therefore, this system will have infinitely many solutions.

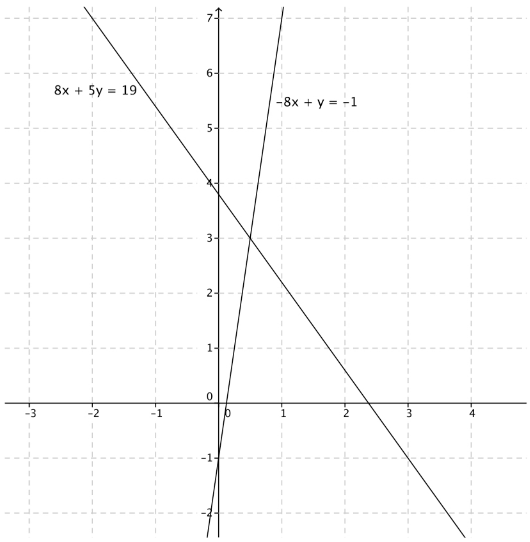


4. $\begin{cases} 8x + 5y = 19 \\ -8x + y = -1 \end{cases}$

$$8x + 5y - 8x + y = 19 - 1$$
$$5y + y = 18$$
$$6y = 18$$
$$y = 3$$

$$8x + 5(3) = 19$$
$$8x + 15 = 19$$
$$8x = 4$$
$$x = \frac{1}{2}$$

The solution is $\left(\frac{1}{2}, 3\right)$.

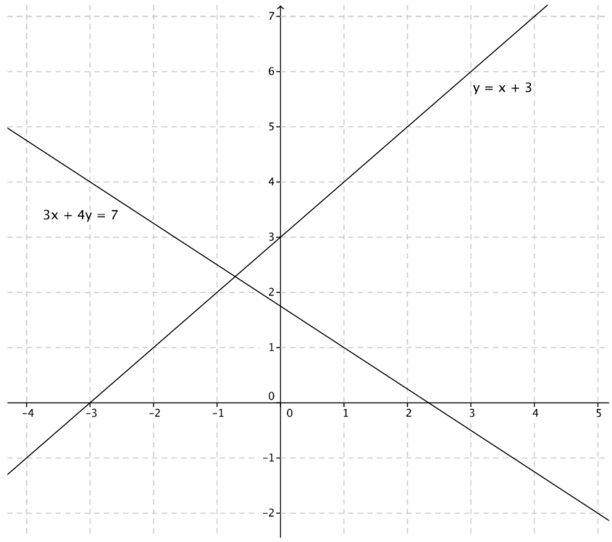


5. $\begin{cases} x+3=y \\ 3x+4y=7 \end{cases}$

$$3x+4(x+3)=7$$
$$3x+4x+12=7$$
$$7x+12=7$$
$$7x=-5$$
$$x=-\frac{5}{7}$$

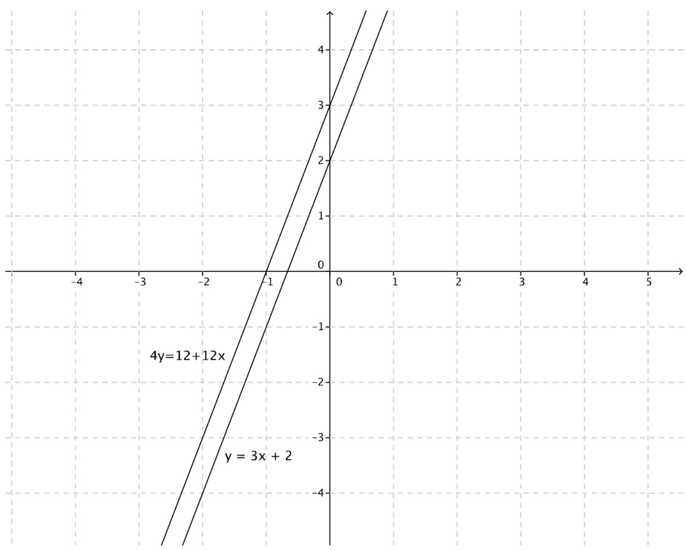
$$-\frac{5}{7}+3=y$$
$$\frac{16}{7}=y$$

The solution is $\left(-\frac{5}{7},\frac{16}{7}\right)$.



6. $\begin{cases} y=3x+2 \\ 4y=12+12x \end{cases}$

The equations graph as distinct lines. The slopes of these two equations are the same, and the y-intercepts are different, which means they graph as parallel lines. Therefore, this system will have no solutions.



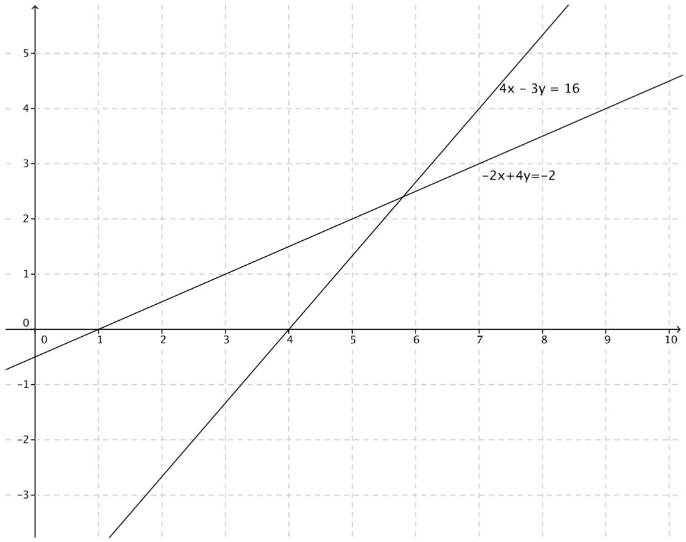
7. $\begin{cases} 4x - 3y = 16 \\ -2x + 4y = -2 \end{cases}$

$$2(-2x + 4y = -2)$$
$$-4x + 8y = -4$$

$$\begin{cases} 4x - 3y = 16 \\ -4x + 8y = -4 \end{cases}$$

$$4x - 3y - 4x + 8y = 16 - 4$$
$$-3y + 8y = 12$$
$$5y = 12$$
$$y = \frac{12}{5}$$

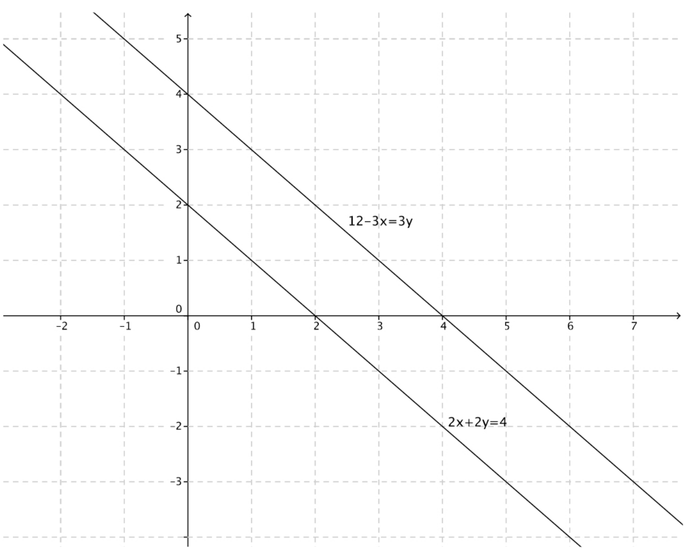
$$4x - 3\left(\frac{12}{5}\right) = 16$$
$$4x - \frac{36}{5} = 16$$
$$4x = \frac{116}{5}$$
$$x = \frac{29}{5}$$



The solution is $\left(\frac{29}{5}, \frac{12}{5}\right)$.

8. $\begin{cases} 2x + 2y = 4 \\ 12 - 3x = 3y \end{cases}$

The equations graph as distinct lines. The slopes of these two equations are the same, and the y-intercepts are different, which means they graph as parallel lines. Therefore, this system will have no solutions.

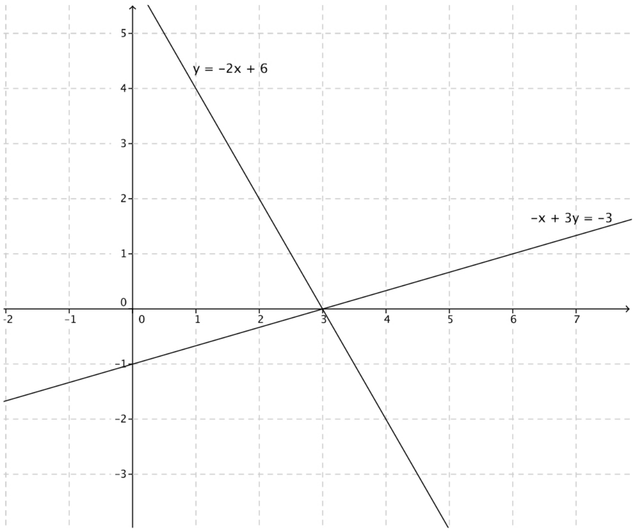


9. $\begin{cases} y = -2x + 6 \\ 3y = x - 3 \end{cases}$

$$3(y = -2x + 6)$$
$$3y = -6x + 18$$
$$\begin{cases} 3y = -6x + 18 \\ 3y = x - 3 \end{cases}$$
$$-6x + 18 = x - 3$$
$$18 = 7x - 3$$
$$21 = 7x$$
$$\frac{21}{7} = x$$
$$x = 3$$

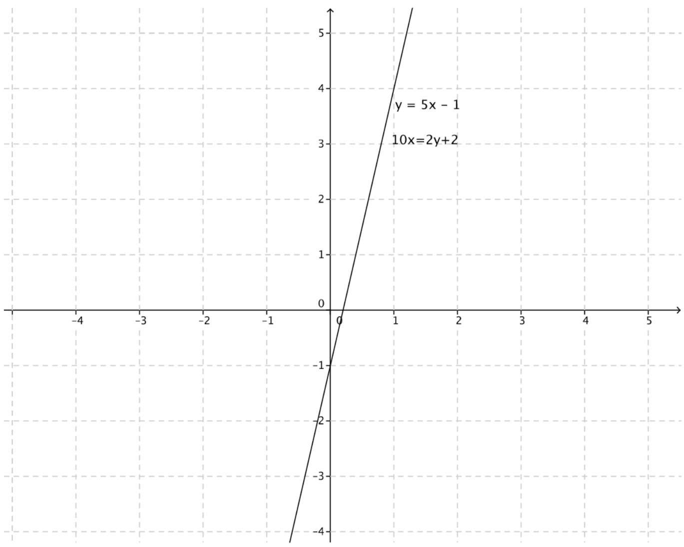
$$y = -2(3) + 6$$
$$y = -6 + 6$$
$$y = 0$$

The solution is $(3, 0)$.



10. $\begin{cases} y = 5x - 1 \\ 10x = 2y + 2 \end{cases}$

These equations define the same line. Therefore, this system will have infinitely many solutions.

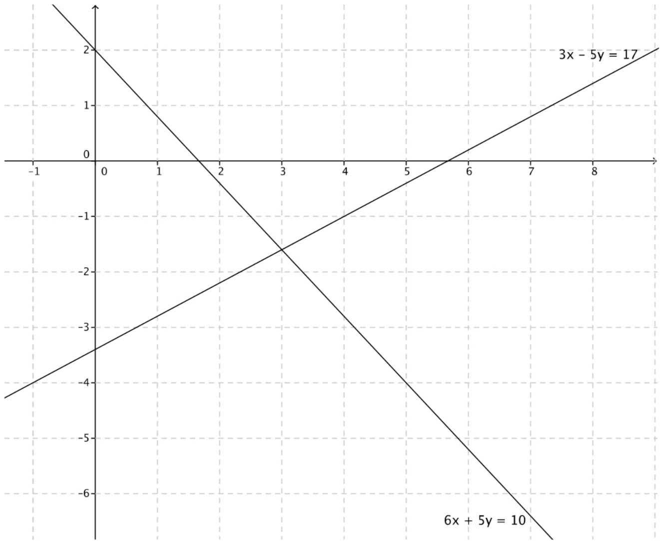


11. $\begin{cases} 3x - 5y = 17 \\ 6x + 5y = 10 \end{cases}$

$$3x - 5y + 6x + 5y = 17 + 10$$
$$9x = 27$$
$$x = 3$$

$$3(3) - 5y = 17$$
$$9 - 5y = 17$$
$$-5y = 8$$
$$y = -\frac{8}{5}$$

The solution is $\left(3, -\frac{8}{5}\right)$.

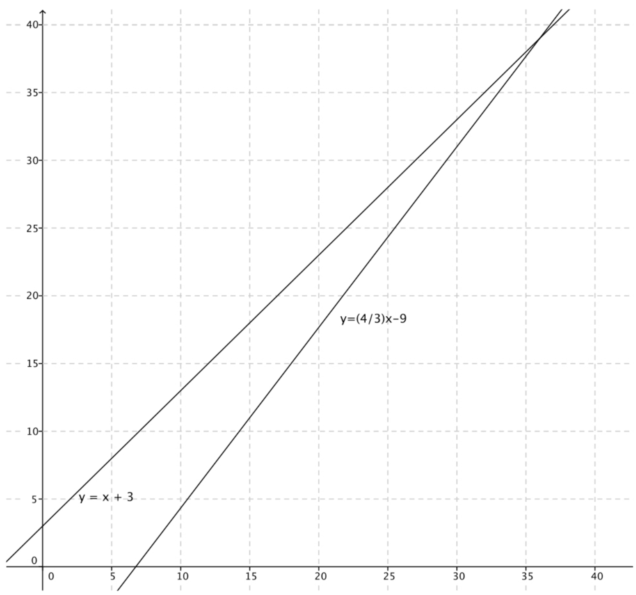


12. $\begin{cases} y = \frac{4}{3}x - 9 \\ y = x + 3 \end{cases}$

$$\frac{4}{3}x - 9 = x + 3$$
$$\frac{1}{3}x - 9 = 3$$
$$\frac{1}{3}x = 12$$
$$x = 36$$

$$y = 36 + 3$$
$$y = 39$$

The solution is $(36, 39)$.

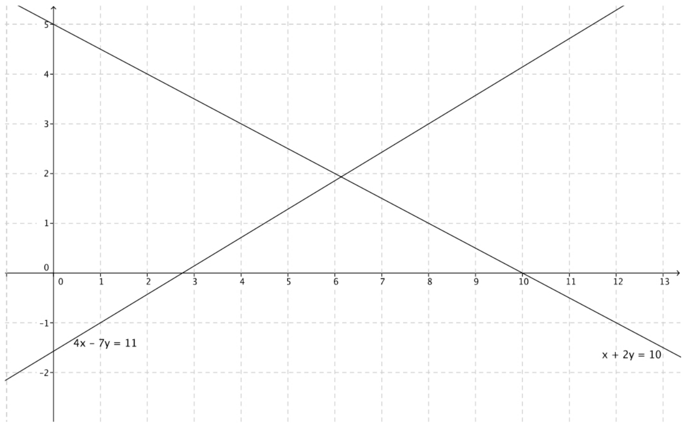


13. $\begin{cases} 4x - 7y = 11 \\ x + 2y = 10 \end{cases}$

$$-4(x + 2y = 10)$$
$$-4x - 8y = -40$$
$$4x - 7y - 4x - 8y = 11 - 40$$
$$-15y = -29$$
$$y = \frac{29}{15}$$

$$x + 2\left(\frac{29}{15}\right) = 10$$
$$x + \frac{58}{15} = 10$$
$$x = \frac{92}{15}$$

The solution is $\left(\frac{92}{15}, \frac{29}{15}\right)$*.*



14. $\begin{cases} 21x + 14y = 7 \\ 12x + 8y = 16 \end{cases}$

The slopes of these two equations are the same, and the y-intercepts are different, which means they graph as parallel lines. Therefore, this system will have no solution.