

Find the common solution for the following system of equations:

$$\begin{cases} -2x + y = -11 \\ 5x - 3y = 30 \end{cases}$$

Let's isolate y :

$$\begin{array}{r} -2x + y = -11 \\ +2x \quad +2x \\ \hline y = 2x - 11 \end{array}$$

$$\begin{array}{r} 5x - 3y = 30 \\ -5x \quad -3x \\ \hline -3y = -5x + 30 \\ \frac{-3y}{-3} = \frac{-5x}{-3} + \frac{30}{-3} \\ y = \frac{5}{3}x - 10 \end{array}$$

$$\begin{array}{r} 2x - 11 = \frac{5}{3}x - 10 \\ +11 \quad +11 \\ \hline 2x = \frac{5}{3}x + 1 \\ 3 \left[2x = \frac{5}{3}x + 1 \right] \\ 6x = 5x + 3 \\ -5x \quad -5x \\ \hline x = 3 \end{array}$$

$$\begin{array}{r} -2x + y = 11 \\ -2(3) + y = 11 \\ -6 + y = 11 \\ +6 \quad +6 \\ \hline y = 17 \end{array} \quad (3, 17)$$

Get out your homework, any questions?

Homework Questions?

Page 33, #'s 3-8

Solve each system of equations.

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

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

5. $\begin{cases} y = -2x - 9 \\ y = 12x + 19 \end{cases}$

6. $\begin{cases} y = -x + 16 \\ y = -x - 8 \end{cases}$

7. $\begin{cases} y = 17x - 6 \\ y = 12x + 44 \end{cases}$

8. $\begin{cases} y = -20x + 14 \\ y = -8x - 44 \end{cases}$

#6

$$\begin{array}{r} -x + 16 = -x - 8 \\ \quad + 8 \quad + 8 \end{array}$$

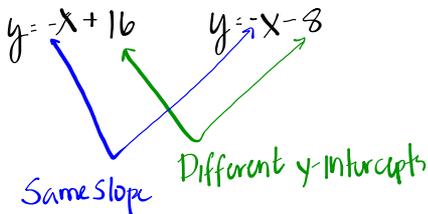
$$\begin{array}{r} -x + 24 = -x \\ +x \quad +x \end{array}$$

$$24 = 0$$

This could mean
 No solutions
 or
 infinite solutions

False statement

No solution means parallel lines



We DO have parallel lines

#5 $y = -2x - 9$
 $y = 12x + 19$

$$\begin{array}{r} -2x - 9 = 12x + 19 \\ +2x \quad +2x \\ \hline -9 = 14x + 19 \\ -19 \quad -19 \\ \hline -28 = 14x \\ 14 \quad 14 \\ \hline -2 = x \end{array}$$

$(-2, -5)$

$$\begin{aligned} y &= -2(-2) - 9 \\ y &= 4 - 9 \\ y &= -5 \end{aligned}$$

Classwork

Page 33, #'s 9-16

For Exercises 9-14, write the equation in $y = mx + b$ form.

9. $4x + 6y + 12 = 0$

10. $-7x + 9y + 4 = 0$

11. $-4x - 2y - 6 = 0$

12. $-x + 4y = 0$

13. $2x - 2y + 2 = 0$

14. $25x + 5y - 15 = 0$

15. A sixth-grade class sells pennants and flags. They earn \$1 profit for each pennant sold and \$6 profit for each flag sold. They sell 50 items in total for a profit of \$115.
- Write two equations that represent the relationship between the number of pennants sold p and the number of flags sold f .
 - How many pennants and how many flags were sold?
16. A seventh-grade class sells mouse pads and cell phone cases with their school logo on them. The class earns \$2 profit for each mouse pad sold and \$4 profit for each cell phone case sold. They sell 100 items in total for a profit of \$268.
- Write two equations that represent the relationship between the number of mouse pads sold m and the number of cell phone cases sold c .
 - How many mouse pads and how many cell phone cases were sold?

Homework

Finish Classwork

1. Define variables

Let $x =$

Let $y =$

2. Look for TOTALS \div then create equations

3. Solve for x and y