Warm Up

3/1

Rewrite the equation by isolating y.

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

$y =$

$+7x \quad +7x$

$9y + 4 = 7x$

$-4 \quad -4$

$\frac{9y}{9} = \frac{7x}{9} - \frac{4}{9}$

$y = \frac{7}{9}x - \frac{4}{9}$

Rewrite the equation by isolating x.

$x =$

$4x + 6y + 12 = 0$

$-6y \quad -6y$

$4x + 12 = -6y$

$-12 \quad -12$

$\frac{4x}{4} = \frac{-6y}{4} - \frac{12}{4}$

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

1.3 Recap

Nyla graphed the equations.

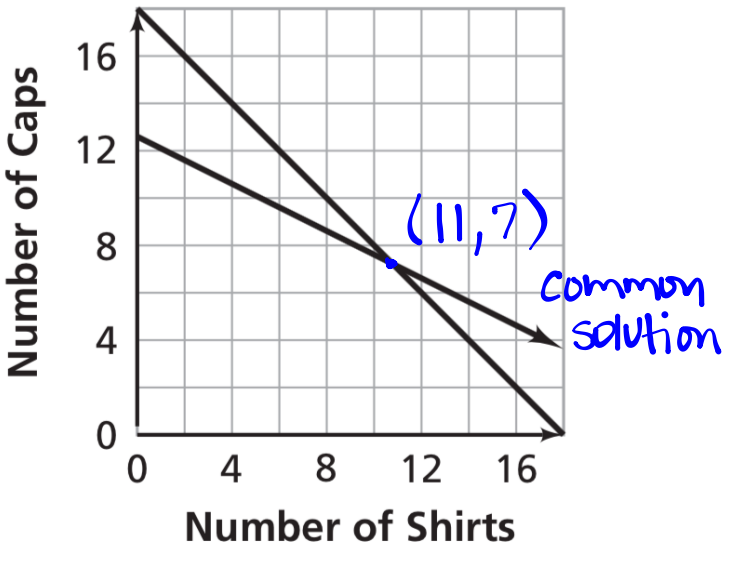
(0,18) (18,0)

$y = -x + 18$

$y = -0.5x + 12.5$

Slope int form

$y = \frac{-1}{1}x + 18$



Jimfa took the 2 equations and made one.

$$\begin{cases} y = -x + 18 \\ y = -0.5x + 12.5 \end{cases}$$

Why? Both expressions are equal to y

$$-x + 18 = -0.5x + 12.5$$

$$+x \qquad +x$$

$$18 = 0.5x + 12.5$$

$$-12.5 \qquad -12.5$$

$$5.5 = 0.5x$$

$$\frac{5.5}{0.5} = \frac{0.5x}{0.5}$$

$$11 = x$$

To find y, we need to substitute 11 in for x

$$y = -x + 18$$

$$y = -(11) + 18$$

$$y = 7$$

Common solution

(11, 7)

Why not use both equations?

$$y = -0.5x + 12.5$$

$$y = -0.5(11) + 12.5$$

$$y = -5.5 + 12.5$$

$$y = 7$$

We don't need to! We will get the same answer.

What do you think of the 2 methods?

Graphing may not always be accurate due to many factors:

size of graph
accuracy of graph procedure
estimating decimals on a graph

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Answers to yesterday's Classwork

B.

1. $\begin{cases} y = 1.5x - 0.4 \\ y = 0.3x + 5 \end{cases}$

(4.5, 6.35)

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

(-1, 4)

3. $\begin{cases} 3x - y = 30 \\ x + y = 14 \end{cases}$

(11, 3)

4. $\begin{cases} x + 6y = 15 \\ -x + 4y = 5 \end{cases}$

(3, 2)

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

??

6. $\begin{cases} x - y = -5 \\ -2x + 2y = 8 \end{cases}$

??

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1. $\begin{cases} y = 1.5x - 0.4 \\ y = 0.3x + 5 \end{cases}$

Looking for a common solution (x, y)

$1.5x - 0.4 = 0.3x + 5$

$(4.5, 6.35)$

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

Isolate x:

$x + y = 3$

$-y \quad -y$

$x = 3 - y$

$x - y = -5$

$+y \quad +y$

$x = y - 5$

$3 - y = y - 5$

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3. $\begin{cases} 3x - y = 30 \\ x + y = 14 \end{cases}$

Isolate y is easiest

$\begin{cases} y = 3x - 30 \\ y = 14 - x \end{cases}$

$3x - 30 = 14 - x$ solve for x

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4. $\begin{cases} x + 6y = 15 \\ -x + 4y = 5 \end{cases}$

Isolate X

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

Isolate x:

$x - y = -5$

$+y \quad +y$

$x = y - 5$

$-2x + 2y = 10$

$-2y \quad -2y$

$\frac{-2x}{-2} = \frac{-2y}{-2} + \frac{10}{-2}$

$x = y - 5$

$y - 5 = y - 5$

$0 = 0$

$-5 = -5$

Infinite # of solutions

True statement → same line

Same equation gives infinite solutions

6. $\begin{cases} x - y = -5 \\ -2x + 2y = 8 \end{cases}$

Isolate y:

$x - y = -5$

$y = x + 5$

$-2x + 2y = 8$

$+2x \quad +2x$

$\frac{2y}{2} = \frac{8 + 2x}{2} \quad \frac{2}{2}$

$y = 4 + x$

same slope

different y-int

$x + 5 = 4 + x$

$-x \quad -x$

$5 = 4$

Not a true statement ∴

No solution

Look at actual lines

$x = y - 5$ $\quad$ $x = y - 4$

$y = 1x + 5$ $\quad$ $y = 1x + 4$

put them both in slope-intercept form

Parallel lines

same slope

different y-ints

Because the lines never cross, there is no solution!

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Classwork

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