Warm Up

Find the x-intercept of:

$$y = \frac{3}{2}x + 4$$

Value of x when y = 0

$0 = \frac{3}{2}x + 4$

$-4 \qquad -4$

$\frac{-4}{\frac{3}{2}} = \frac{\frac{3}{2}x}{\frac{3}{2}}$

$\left(\frac{2}{3}\right)(-4) = \frac{3}{2} \times \left(\frac{2}{3}\right)$

$-\frac{8}{3} = x$

same as $-4 \div \frac{3}{2}$

$-\frac{8}{3} = x$

$\frac{2}{3} \cdot \frac{3}{2} = 1$

reciprocal of $\frac{2}{3}$

$\frac{-4}{1} \div \frac{3}{2}$

$\frac{-4}{1} \cdot \frac{2}{3}$

$-\frac{8}{3}$

Problem 2.3 Recap

Problem 2.3

A Use the methods of Pablo and Jasmine, and Samantha to solve each system.

1. $\begin{cases} -x + 4y = 2 \\ x + 2y = 5 \end{cases}$ $\left(\frac{8}{3}, \frac{7}{6}\right)$

2. $\begin{cases} 2x + 3y = 4 \\ 5x + 3y = -8 \end{cases}$ $(-4, 4)$

3. $\begin{cases} 2x - 3y = 4 \\ 5x - 3y = 7 \end{cases}$ $\left(1, -\frac{2}{3}\right)$

4. $\begin{cases} 3x + 2y = 10 \\ 4x - y = 6 \end{cases}$ $2[\quad]$ $(2, 2)$

$3x + 2y = 10$

$8x - 2y = 12$

$11x = 22$

$x = 2$

C 1. Is System B below equivalent to System A? Explain.

System A	System B
$2\begin{cases}3x+2y=10\\4x-y=6\end{cases}$	$\begin{cases}3x+2y=10\\8x-2y=12\end{cases}$

2. Use the combination method to solve System B.
3. Check that your solution also satisfies System A.

We figured this out when we did A4.

D For each system:

- Write an equivalent system that is easy to solve using the combination method.
- Solve the system.
- Check that your solution also satisfies the original system.

1. $\begin{cases}2x+2y=5\\3x-6y=12\end{cases}$
2. $\begin{cases}x+3y=4\\4x+5y=2\end{cases}$
3. $\begin{cases}2x+y=5\\3x-2y=15\end{cases}$
4. $\begin{cases}-x+2y=5\\5x-10y=11\end{cases}$

1. $3[2x+2y=5]$
$3x-6y=12$

$6x+6y=15$
$+\ 3x-6y=12$
$9x=27$

2. $4[x+3y=4]$
$4x+5y=2$

$4x+12y=16$
$-\ 4x+5y=2$
$7y=14$

3. $2[2x+y=5]$
$3x-2y=15$

$4x+2y=10$
$3x-2y=15$

4. $-5[-x+2y=5]$
$5x-10y=11$

$5x-10y=-25$
$-\ 5x-10y=11$
$0=-36$
No Solution

$-x+2y=5$
$+x \quad +x$
$\frac{2y}{2}=\frac{x}{2}+\frac{5}{2}$
$y=\frac{1}{2}x+\frac{5}{2}$

$5x-10y=11$
$-5x \quad -5x$
$\frac{-10y}{-10}=\frac{-5x}{-10}+\frac{11}{-10}$
$y=\frac{1}{2}x-\frac{11}{10}$

These two equations are parallel lines - same slope, different y-int

There is no solution because they never cross!

Elimination Practice FRONT

1. $x - y = 1$
$x + y = -9$

2. $p + q = -2$
$p - q = 8$

3. $4x + y = 23$
$3x - y = 12$

4. $2x + 5y = -3$
$2x + 2y = 6$

5. $3x + 2y = -1$
$4x + 2y = -6$

6. $5x + 3y = 22$
$5x - 2y = 2$

7. $5x + 2y = 7$
$-2x + 2y = -14$

8. $3x - 9y = -12$
$3x - 15y = -6$

9. $-4c - 2d = -2$
$2c - 2d = -14$

10. $2x - 6y = 6$
$2x + 3y = 24$

11. $7x + 2y = 2$
$7x - 2y = -30$

12. $4.25x - 1.28y = -9.2$
$x + 1.28y = 17.6$

Options:

1-6 on Front and 1-6 on Back

OR

Back 1-12

More Challenging BACK

Use elimination to solve each system of equations.

1. $x + y = -9$
$5x - 2y = 32$

2. $3x + 2y = -9$
$x - y = -13$

3. $2x + 5y = 3$
$-x + 3y = -7$

4. $2x + y = 3$
$-4x - 4y = -8$

5. $4x - 2y = -14$
$3x - y = -8$

6. $2x + y = 0$
$5x + 3y = 2$

7. $5x + 3y = -10$
$3x + 5y = -6$

8. $2x + 3y = 14$
$3x - 4y = 4$

9. $2x - 3y = 21$
$5x - 2y = 25$

10. $3x + 2y = -26$
$4x - 5y = -4$

11. $3x - 6y = -3$
$2x + 4y = 30$

12. $5x + 2y = -3$
$3x + 3y = 9$

Homework

Finish classwork