Warm Up

3/18

Notebook Check

Google Classroom

Homework Questions?

Page 34, #'s 18-19

18. On a hot summer day, Jay set up a lemonade stand. He kept track of how many glasses he sold on his phone.

a. Write two equations that relate the number of large glasses sold l and the number of small glasses sold s.

b. Solve the system of equations.

c. How many small glasses were sold?

d. How many large glasses were sold?

Let s = # of small drinks

Let l = # of large drinks

$$\begin{cases} s + l = 29 \\ 0.35s + 0.5l = 13.45 \end{cases}$$

Totals

$s + l = 29$

$-l \quad -l$

$s = 29 - l$

Isolated 's'

$0.35s + 0.5l = 13.45$

$0.35(29 - l) + 0.5l = 13.45$

$10.15 - 0.35l + 0.5l = 13.45$

$-10.15 \qquad -10.15$

$\frac{0.15l}{0.15} = \frac{3.30}{0.15}$

$l = 22$

$s + l = 29$

$s + 22 = 29$

$-22 \quad -22$

$s = 7$

7 small drinks

22 large drinks

Pablo and Jasmine decide to try some other food trucks after eating at the taco truck in Problem 2.2. For Exercises 19–22, do the following.

a. Write two equations based on the information.

b. Solve the system of equations to determine the price of 1 serving of food and the price of 1 drink or bag of chips.

19. Pablo buys 3 servings of jambalaya and 2 drinks for $18.00. Jasmine buys 1 serving of jambalaya and 2 drinks for $9.00.

$3x + 2y = 18$

$x + 2y = 9$

x = price of food

y = price of drink or chips

Recap

D Use diagrams or reasoning about equations to solve each system.

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

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

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

$x + y = 5$

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

$+\frac{1}{2} \quad +\frac{1}{2}$

$y = 5.5$

$(-0.5, 5.5)$

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

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

$x = -1$

$-1 + 2y = 6$

$+1 \quad +1$

$\frac{2y}{2} = \frac{7}{2}$

$y = \frac{7}{2}$

Method from page 30:

If $2x - y = 4$ and $x + y = 5$, then

$$(2x - y) + (x + y) = 4 + 5 \quad (1)$$
$$3x = 9 \quad (2)$$
$$x = 3 \quad (3)$$
$$3 + y = 5 \quad (4)$$
$$y = 2 \quad (5)$$

Why can we add the two equations?

$$+ \begin{cases} 2x - y = 4 \\ x + y = 5 \end{cases}$$

Added to eliminate the y-variable

$$\frac{3x}{3} = \frac{9}{3}$$

$x = 3$

$(3, 2)$

$x + y = 5$

$3 + y = 5$

$y = 2$

Why do you think this "Combination" method is also called Elimination?

$$+ \begin{cases} 2x - y = 4 \\ x + y = 5 \end{cases}$$

$$3x = 9$$

Combining 2 equations to ELIMINATE a variable

Combination/Elimination works if we have the same coefficient for a variable in BOTH equations.

$$2.5x + y = 10.7$$
$$2.5x + 2y = 12.9$$

$-y = -2.2$

$\frac{-y}{-1} = \frac{-2.2}{-1}$

$y = 2.2$

eliminate x

$$4a + b = 2$$
$$4a + 3b = 10$$

Eliminate: a

Operation: subtraction

$$\frac{3}{4}x - \frac{1}{2}y = 8$$
$$\frac{3}{2}x + \frac{1}{2}y = 19$$

Eliminate: y

Operation: addition

$$2x + 4y = 10$$
$$x - 4y = -2.5$$

Eliminate: y

Operation: addition

$$6m - 8n = 3$$
$$2m - 8n = -3$$

Eliminate: n

Operation: subtraction

signs are the same use SUBTRACTION

Classwork - 2.3 A and C

Problem 2.3

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

1. $\begin{cases} -x + 4y = 2 \\ x + 2y = 5 \end{cases}$

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

3. $\begin{cases} 2x - 3y = 4 \\ 5x - 3y = 7 \end{cases}$

4. $\begin{cases} 3x + 2y = 10 \\ 4x - y = 6 \end{cases}$

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

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

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

Homework

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