

Bellwork: Algebra 1

1. Write down your homework for the night.
2. Take out your assignment from yesterday.
3. You need a calculator and your composition book.
4. Answer the following question on your THURSDAY Bellwork:

$$72y + -72y = 0 - 10x + 10x = 0$$

What mathematical operations can you perform on $7x$ to eliminate it?

$$\frac{0}{7x} = 0 \quad 7x \cdot 0 = 0 \quad \frac{7x}{7x} = 1$$
$$\frac{7x + -7x}{7x} = 0$$

5. Define your variables.

$x =$ bags of smarties

$y =$ bags of dum dums

6. Write a system of equations to model the situation.

$$7x + 8.5y = 60.50$$

$$+ -7x - 7y = -56$$

$$\frac{1.5y}{1.5} = \frac{4.5}{1.5}$$

$$y = 3$$

$$\begin{aligned} 3x + 2y &= 10 \\ 10x - 15y &= 30 \end{aligned}$$

<p>Elimination Method</p>	<p>A method to solve systems by adding the equations to eliminate a variable.</p>
<p>Steps to solve</p>	<ul style="list-style-type: none"> • Step 1: Make sure the equations are lined up! • Step 2: Add equations the equations to eliminate the variable with common <u>coefficients</u>. • Step 3: <u>Solve</u> for the remaining variable. • Step 4: <u>Substitute</u> your answer into either original equation and <u>solve</u> for the other variable.

$$\begin{aligned}
 x + y &= 8 \\
 y + 8 &= x
 \end{aligned}$$

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

 $-2y = 10 \quad y = -5$

2. $\begin{cases} x + 4y = 13 \\ x - y = 3 \end{cases}$

3. $\begin{cases} 3x - 10y = 14 \\ 3x - 9y = 15 \end{cases}$
 ~~$3x - 9y = 15$~~
 $-3x + 9y = -15$

 $-1y = -1 \quad y = 1$
 $(8, 1) \quad 3x - 10(1) = 14$
 $3x - 10 = 14$
 $3x = 24$
 $x = 8$

4. $\begin{cases} 4x + 2y = 6 \\ 2x + 2y = 18 \end{cases}$
 ~~$2x + 2y = 18$~~
 $+ 2x - 2y = -18$

 $6x = -12$
 $x = -2$
 $(-2, 7) \quad 4(-2) + 2y = 6$
 $-8 + 2y = 6$
 $+8 \quad +8$
 $2y = 14 \quad y = 7$

What if there are

**NO COMMON
COEFFICIENTS?**

1.
$$\begin{cases} x + 3y = 6 \\ 2x - 7y = -1 \end{cases}$$

2.
$$\begin{cases} 9x + 3y = 12 \\ 2x + y = 5 \end{cases}$$

~~$$\begin{cases} 9x + 3y = 12 \\ 2x + y = 5 \end{cases}$$~~
$$-6x - 3y = -15$$

$$3x = -3$$

$$x = -1$$

$$\begin{array}{r} 9(-1) + 3y = 12 \\ -9 + 3y = 12 \\ +9 \quad \quad +9 \end{array}$$

$$3y = 21$$

$$y = 7$$

$(-1, 7)$

3.
$$\begin{cases} 3x - y = 14 \\ 5x + 4y = 12 \end{cases}$$

4.
$$\begin{cases} x + y = -3 \\ 5x - 2y = -50 \end{cases}$$

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

~~$$\begin{cases} 3x - 3y = -3 \\ 2x - y = -5 \end{cases}$$~~
$$\begin{array}{r} -6x + 3y = 15 \\ \hline -3x = 12 \\ x = -4 \end{array}$$

$$\begin{array}{r} -12 - 3y = -3 \\ +12 \quad 0 \quad +12 \\ \hline -3y = 9 \\ y = -3 \end{array}$$

$$(2x - 6y = 12) \cdot 5$$

$$(-5x + 15y = -30) \cdot 2$$

$$10x - 30y = 60$$

$$+ -10x + 30y = -60$$

$$0 = 0$$

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

$$3x + 3y = 9$$