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•	Linear Systems by tion Explore - Day 1	rillear.	Name Date		Period	
COMBINA	inion explore - Day I		Date		Perioo	<del></del>
-	3+5=8	9+	7 = 16	1		
	7 + 2 = 9	4 – 7	7 = -3			
	10 + 7 = 17	13	= 13			

- 2. In each example, where did the third equation come from?
  By combine frost & 2nd equations terms
- Create another example to determine if this will always happen.

- 4. Add the two equations in this system.  $\begin{cases} 2x + 4y = 10. \\ -2x 3y = -8. \end{cases}$ 
  - a. Which variable was eliminated from the equations?

- b. What is the value of y? = =
- Find the value of x. 2x + 4y = 10 2x = 2 2x + 4(2) = 10 2x = 2
  - d. What is the solution to this system of equations?

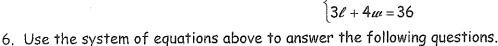
The process that you just performed is called linear combination or elimination. Linear combination is a process that involves adding two linear equations to create one equation with only one variable.

5. How is solving a system using the linear combination method similar to solving a system using the substitution method? In both methods we combre the equations to make lequation with one variable g, we can solve.

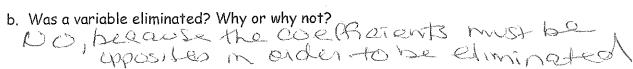
Linear Systems LS6

Mr. Nguyen bought a package of 3 chicken legs and a package of 7 chicken wings. Ms. Dawes bought a package of 3 chicken legs and 4 chicken wings. Mr. Nguyen bought 45 ounces of chicken. Ms. Dawes bought 36 ounces of chicken. Together they wrote this system of equations to find the weight of each AX +BY = C chicken leg and chicken wing.

$$\begin{cases} 3\ell + 7\omega = 45 \\ 3\ell + 4\omega = 45 \end{cases}$$



a. Add the two equations. (a Q + 1165 = 81



c. Multiply both sides of the second equation by -1.

d. Write the resulting system of equations and add these two-equations.

$$\frac{3917w = 45}{3w = -36} = 9$$

e. Was a variable eliminated? The l's were aliminated

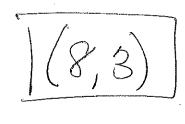
f. We could have multiplied both sides of either equation by any number. Why did we choose to multiply the second equation by -1?

multiply the second equation by -1?

That mode the coefficients

of 
$$Q$$
, opposites

g. Return to 6d and find the solution to the system.  $3Q+4W=36$ 
 $3W=9$ 
 $3Q+4(3)=36$ 
 $Q=8$ 



7. Solve the system using linear combination (2x-5y)(13)

(-1, -3)

$$\frac{-2x+5y=+3}{-2x+5y=+3} = 2x+(-3)=-5$$

$$\frac{-2x+5y=+3}{-2x+5y=+3} = 2x=-2$$

$$\frac{-2x+5y=+3}{-2x+5y=+3} = 2x=-2$$

$$\frac{-2x+5y=+3}{-2x+5y=+3} = -2$$

$$2x+(-3)=-5$$
  
 $2x=-2$   
 $x=-1$ 

8. Write a system of equations that could easily be solved by linear combination. Do not solve the system.