Solving Systems of Linear Equations:

Name _____

Date _____

Elimination

You can use elimination to solve a system of equations.

To use elimination, your equations need to be set up so that you can add or subtract them to eliminate a variable term. In other words, the coefficients of one of the variables need to either be the same number or opposite numbers. Right now, you can't eliminate either of the variable terms in this example.	$x - y = 4$ $2x + 3y = 13$
So, let's rewrite one of the equations to help you eliminate a variable term. To get opposite coefficients for y, you can multiply the first equation by **3** on both sides. Since the equation you just got and the equation $2x + 3y = 13$ have opposite coefficients for y, you can add those equations to eliminate y. Then, solve for x.	$3(x - y) = 3(4)$ $3x - 3y = 12$
	$3x - 3y = 12$ $+ 2x + 3y = 13$ $5x + 0y = 25$ $5x = 25$ $x = 5$
Now that you know x, you can find y. Substitute **5** for $\boldsymbol{x}$ in either equation to solve for y. Let's use the second equation, $2x + 3y = 13$.	$2\boldsymbol{x} + 3y = 13$ $2(\mathbf{5}) + 3y = 13$ $10 + 3y = 13$ $3y = 3$ $y = 1$
Finally, write the solution as an ordered pair. Since $x = 5$ and $y = 1$, the solution is **(5, 1)**.	

Practice! Solve each system of equations using elimination.

$7x - 5y = 8$ $2x + 5y = 28$ (___ , ___)	$2x + y = 11$ $-2x - 6y = -16$ (___ , ___)	$-8x - y = 14$ $7x + y = -13$ (___ , ___)
$-3x + y = -6$ $3x + y = 18$ (___ , ___)	$-5x + 2y = 6$ $x - y = -6$ (___ , ___)	$x + y = -2$ $-4x - 3y = 8$ (___ , ___)
$3x - 6y = 0$ $3x - 8y = 26$ (___ , ___)	$-2x + 3y = -16$ $x - 2y = 9$ (___ , ___)	$2x + y = 1$ $4x + 5y = -13$ (___ , ___)