Jadwin-Technical Math A-7th Period-Off Site Learning Packet Day 8
Solving Systems of Equations by Elimination Part 1
(jadwinry@mwood.cc , (330) 296-2892 ext 114)

The most convenient way of solving certain systems of equations is by the elimination method or the _addition or subtraction method (or elimination method)_. Some systems of equations are more readily solved by this method than by the substitution method.

Procedure for Solving Systems of Equations by Elimination

1. Eliminate a variable by adding or subtracting the equations so that one equation with one variable remains. It may be necessary to rearrange the equations to align like terms.
2. Solve the resulting equation for the remaining variable.
3. Substitute the value of this variable in either of the two original equations and solve for the other variable.
4. Check your solution by substituting the values of both variables in the two original equations.

Example: $5x + 2y = 19$
$+\ 3x - 2y = 5$

$8x = 24$	(add equations simultaneously)
$x = 3$	(divide by 8)
$3x - 2y = 5$	
$3(3) - 2y = 5$	(substitute 3 in for x)
$9 - 2y = 5$	(simplify)
$-2y = -4$	(subtract 9 from each side)
$y = 2$	(divide by -2)

Solution is (3,2)

Check the solution in both equations.

$5x + 2y = 19$	$3x - 2y = 5$
$5(3) + 2(2) = 19$	$3(3) - 2(2) = 5$
$15 + 4 = 19$	$9 - 4 = 5$
$19 = 19$	$5 = 5$

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Solve each of the following systems of equations by the elimination method.

1. $\begin{cases} 4x+7y=70 \\ 6x-7y=0 \end{cases}$

2. $\begin{cases} 6x+4y=72 \\ 7x+4y=80 \end{cases}$

3. $\begin{cases} 5x-3y=-9 \\ 7x-3y=-23 \end{cases}$

4. $\begin{cases} 5x-4y=0 \\ 8x-4y=12 \end{cases}$