The Elminator II

Solving the system of linear equations by using the *elimination* method.

1) $\begin{aligned} x+y&=5 \\ 2x-y&=4 \end{aligned}$

1st:

1. Can I add or subtract the two equations to eliminate a variable?

_____ new equation

2nd:

2. Solve for the remaining variable.

3rd:

3. Solve for the eliminated variable by substituting the known variable value into either of the original equations.

4th: $x+y=5$ | $2x-y=4$

4. Verify your solution by substituting the values in to ***both*** equations.

The point of intersection (*solution*) is _____.

2) $3x + 2y = 5$
$3x + y = 1$

1st:

1. Can I add or subtract the two equations to eliminate a variable?

_____ new equation

2nd:

2. Solve for the remaining variable.

3rd:

3. Solve for the eliminated variable by substituting the known variable value into either of the original equations.

4th: $3x + 2y = 5$ | $3x + y = 1$

4. Verify your solution by substituting the values in to ***both*** equations.

The point of intersection (*solution*) is _____.

- In problem 1 the two equations were _____ (added/subtracted) in order to eliminate the _____ (x/y) variable.
- In problem 2 the two equations were _____ (added/subtracted) in order to eliminate the _____ (x/y) variable.

3) $\begin{aligned} 3x+2y&=6 \\ x-y&=2 \end{aligned}$

1. Can I add or subtract the two equations to eliminate a variable?

1st: *Why, when the equations are added or subtracted, a variable is *not eliminated*? The variables are *not* eliminated because the _____ of the variables are *not* the same (for elimination by subtraction) or opposites of each other (for elimination by addition).

*The _____(x/y) variable could be eliminated if the coefficient of the _____ (x/y) variable of the second equation was changed from _____ to _____.

Start with the given system.	Prepare to *eliminate y* by multiplying the 2nd equation by 2.	Write the equations; add to *eliminate y*.
$3x+2y=6$	$3x+2y=6 \Rightarrow$	$3x+2y=6$
$x-y=2$	$2(x-y=2) \Rightarrow$	$2x-2y=4$
		$5x=10$

2nd: $5x=10$
$x=2$

2. Solve for the remaining variable.

3rd:

3. Solve for the eliminated variable by substituting the known variable value into either of the original equations.

4th: $3x+2y=6$ | $x-y=2$

4. Verify your solution by substituting the values in to ***both*** equations.

4) $\begin{aligned} 2x+6y&=6 \\ x+y&=1 \end{aligned}$

1. Can I add or subtract the two equations to eliminate a variable?

1st: *Why, when the equations are added or subtracted, a variable is *not eliminated*? The variables are *not* eliminated because the _____ of the variables are *not* the same (for elimination by subtraction) or opposites of each other (for elimination by addition).

*The _____(x/y) variable could be eliminated if the coefficient of the _____ (x/y) variable of the second equation was changed from _____ to _____.

Start with the given system.	Prepare to *eliminate* ____ by multiplying the _____(1st/2nd) equation by _____.	Write the equations; ___(+/-) to *eliminate* ___.
$2x+6y=6$ $x+y=1$		_____

2nd:

2. Solve for the remaining variable.

3rd:

3. Solve for the eliminated variable by substituting the known variable value into either of the original equations.

4th: $2x + 6y = 6$ | $x + y = 2$

4. Verify your solution by substituting the values in to ***both*** equations.

Solve each of the following systems of equations by the *elimination method*. Verify your *solution*.

5) $\begin{aligned} x + y &= 6 \\ 3x + y &= 4 \end{aligned}$

Q: Can I add or subtract the two equations to eliminate a variable or do I need to multiply one of the equations first?

A: _____.

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6) $\begin{aligned} 2x + y &= 3 \\ 3x - 2y &= 8 \end{aligned}$

Q: Can I add or subtract the two equations to eliminate a variable or do I need to multiply one of the equations first?

A: _____.