7.5 Solving Systems by Elimination

* Important: This method is most useful when the [ ] of one of the variables in both equations is the [ ]

ex. Solve the following system algebraically:

$$\begin{cases} 4x - 2y = 10 & ① \\ 5x + 2y = 26 & ② \end{cases}$$

Step 1:

Step 2:

* Note: If none of the coefficients are the same, this method still works but we need to multiply one, or both, equations by a value that will allow this method to work. If we graph

3x + y = -6 and 6x + 2y = -12 we notice they are the same.

ex. Solve the following system algebraically:

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

Step 1:

Step 2:

Step 3:

ex. Solve the following system algebraically:

$$\begin{cases} 3x - 4y = 7 & ① \\ 5x - 6y = 8 & ② \end{cases}$$

Step 1:

Step 2:

Step 3:

ex. Lilly sold 5 bouquets of tulips and 2 bouquets of roses for $80. Kate sold 1 bouquet of tulips and 4 bouquets of roses for $70. Write a system of equations that models this situation and solve it using elimination.

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ex. Solve the following system algebraically:

$$\begin{cases} \frac{3}{2}x - \frac{1}{2}y = 4 & ① \\ \frac{1}{2}x + \frac{1}{4}y = \frac{5}{2} & ② \end{cases}$$

Step 1:

Step 2:

Step 3: