

Review - Solving Linear Systems by Elimination.

$$\text{Ex 1: } \begin{cases} 0.5x - 0.3y = 1.5 \\ 0.2x - 0.1y = 0.7 \end{cases}$$

Multiply both equations through by 10

$$\begin{cases} 5x - 3y = 15 & \textcircled{1} \\ 2x - y = 7 & \textcircled{2} \end{cases}$$

Eliminate y :

$$\textcircled{2} \times 3: \begin{cases} 5x - 3y = 15 & \textcircled{1} \\ 6x - 3y = 21 & \textcircled{2}' \end{cases}$$

$$\textcircled{2}' - \textcircled{1}: \begin{aligned} x + 0 &= 6 \\ x &= 6 \end{aligned}$$

→ Sub $x=6$ into $\textcircled{2}'$:

$$2(6) - y = 7$$

$$y = 12 - 7, \quad y = 5$$

$$\text{POI: } (6, 5)$$

$$\text{Ex 2: } \begin{cases} 5x - 12y = 1 & \textcircled{1} \\ 13x + 9y = 16 & \textcircled{2} \end{cases}$$

Eliminate y : $\text{lcm}(9, 12) = 36$ ✓

$$\textcircled{1} \times 3: \begin{cases} 15x - 36y = 3 & \textcircled{1}' \\ 52x + 36y = 64 & \textcircled{2}' \end{cases}$$

$$\textcircled{2} \times 4: \begin{cases} 15x - 36y = 3 & \textcircled{1}' \\ 52x + 36y = 64 & \textcircled{2}' \end{cases}$$

$$\textcircled{1}' + \textcircled{2}': \begin{aligned} 67x + 0 &= 67 \\ x &= \frac{67}{67} = 1 \end{aligned}$$

$$\text{POI: } (1, \frac{1}{3})$$

→ Sub $x=1$ into $\textcircled{1}'$:

$$5(1) - 12y = 1$$

$$12y = 5 - 1$$

$$12y = 4, \quad y = \frac{4}{12} = \frac{1}{3}$$