



Solving Systems of Equations with Non-Integer Coefficients

(Video Notes)

[Video Link](#)

Solving Systems of Equations with Fractional/Decimal Coefficients

Solve the following system of equations using any method you would like.

$$\frac{1}{2}x - \frac{2}{3}y = -5$$

$$\frac{3}{5}x - \frac{1}{10}y = -6$$

Clear any fractions by multiplying by a LCD.
 \downarrow
 LCM

$$6 \left(\frac{1}{2}x - \frac{2}{3}y = -5 \right)$$

$$\downarrow$$

$$\underline{3x - 4y = -30}$$

Find LCD of 2, 3, 1 = 6

$$\frac{3 \cdot 6}{1} \cdot \frac{1}{2}x = 3x$$

$$\frac{2 \cdot 6}{1} \cdot \frac{-2}{3}y = -4y$$

$$6 \cdot -5 = -30$$

$$10 \left(\frac{3}{5}x - \frac{1}{10}y = -6 \right)$$

$$6x - y = -60$$

LCD of: 5, 10 = 10

$$\frac{2}{10} \cdot \frac{3}{5}x = 6x$$

$$\frac{1}{10} \cdot \frac{1}{10}y = 1y$$

$$-60 = -60$$

$$3x - 4y = -30 \longrightarrow 3x - 4y = -30$$
$$-4(6x - 1y = -60) \longrightarrow -4(-24x + 4y = 240)$$

elimination

$$\text{LCM of } 4, 1 = 4$$

$$\frac{-24x}{-21} = \frac{240}{-21}$$

$$x = -10$$

$$3x - 4y = -30$$

$$3(-10) - 4y = -30$$

$$-30 - 4y = -30$$

$$\begin{array}{r} -30 - 4y = -30 \\ +30 \qquad \qquad +30 \\ \hline \end{array}$$

$$\frac{-4y}{-4} = \frac{0}{-4}$$

$$y = 0$$

∴ solution: $(-10, 0)$