



Solving Systems of Equations by Elimination (Part 1)

(Video Notes)

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Solve the following system of equations by elimination.

$$8a + 3b = 11$$

$$5a - 3b = 41$$

$$\begin{array}{r} (8a + 3b = 11) \\ + (5a - 3b = 41) \\ \hline 13a = 52 \\ \frac{13a}{13} = \frac{52}{13} \\ a = 4 \end{array}$$

$$\begin{array}{r} 8a + 3b = 11 \\ 8(4) + 3b = 11 \\ \hline 32 + 3b = 11 \\ -32 \quad -32 \\ \hline 3b = -21 \\ \frac{3b}{3} = \frac{-21}{3} \\ b = -7 \end{array}$$

Solution:
(4, -7)

Solve the following system of equations by elimination.

$$\begin{array}{r} 4x + 7y = -11 \\ 4x - 3y = 19 \end{array} \quad \begin{array}{r} \longrightarrow \\ \longrightarrow \end{array} \quad \begin{array}{r} 4x + 7y = -11 \\ + \quad -4x + 3y = -19 \\ \hline 10y = -30 \\ \frac{10y}{10} = \frac{-30}{10} \\ y = -3 \end{array}$$

$$\begin{array}{r} 4x + 7y = -11 \\ 4x + 7(-3) = -11 \\ 4x - 21 = -11 \\ \quad +21 \quad +21 \\ \hline 4x = 10 \\ \frac{4x}{4} = \frac{10}{4} \\ x = \frac{10 \div 2}{4 \div 2} = \frac{5}{2} \text{ or } x = 2.5 \end{array}$$

Solution:
(2.5, 4)