

Unit 8: Systems of Equations; Linear & Quadratic Inequalities***8.2 Solving Systems of Equations Algebraically***

Recall: Systems of Linear Equations – two algebraic solution methods

1) Substitution

$$4x + 5y = 26$$

$$3x - y = -9$$

2) Elimination

$$6a + 5b = 24$$

$$4a + 3b = 12$$

Same methods can be applied to Linear-Quadratic or Quadratic-Quadratic Systems

ex. Solve:

$$\begin{aligned} 5x - y &= 10 \\ x^2 + x - 2y &= 0 \end{aligned}$$

Method 1 – Substitution

Method 2 – Elimination

ex. Solve:

$$\begin{aligned}3x^2 - x - y - 2 &= 0 \\6x^2 + 4x - y &= 4\end{aligned}$$

Method 1 – Substitution

Method 2 – Elimination

ex. Determine two integers such that the sum of the smaller number and twice the larger number is 46. Also, when the square of the smaller number is decreased by three times the larger, the result is 93.



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