

## Alg I 6.2 notes.notebook

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### Solving Systems with Substitution

The substitution method is an effective and straightforward way to solve systems of equations. It consists of 3 simple steps...

1. Solve one equation for one of the variables.
2. Plug that value into the other equation.
3. Solve for the other variable.

A basic example: 
$$\begin{cases} y = 4 \\ 2x + y = 12 \end{cases}$$

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Solve the system using substitution.

$$3) \begin{cases} y = \frac{4}{3}x - 6 \\ -5x + 3y = 6 \end{cases} \quad 4) \begin{cases} 5x - 2y = 17 \\ 3x = 6y - 9 \end{cases}$$

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Solve the system using substitution.

$$1) \begin{cases} y = 3x - 7 \\ x = 5 \end{cases} \quad 2) \begin{cases} y = 3x \\ 2x - 3y = 28 \end{cases}$$

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*The special cases... Sometimes things don't work out like expected.*

$$5) \begin{cases} y = 7x \\ 7x - y = 18 \end{cases} \quad 6) \begin{cases} y = 2x + 3 \\ 4x - 2y = -6 \end{cases}$$

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Solve the system using substitution.

$$7) \begin{cases} 2x - 5y = 19 \\ x - y = 4 \end{cases}$$

$$8) \begin{cases} 10x + 5y = 20 \\ 3y = 12 - 6x \end{cases}$$

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9) A group of 15 friends decide to attend a Sporting KC game. Tickets to sit in the member's club cost \$30 and south stand tickets cost \$35. There weren't enough tickets in either section for the group to sit together so they split up. It cost a total of \$480 for tickets. How many sat in each section?

a. Define variables

b. Write the system

c. Use substitution to solve

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10) The measure of one acute angle in a right triangle is  $36^\circ$  more than twice as big as the measure of the other acute angle. Define variables, write the system, and solve to find the measure of the two acute angles. (reminder: the 3 angles in a triangle sum to  $180^\circ$ )