Lesson 5-2 Solving systems using substitution _____

Today we will learn:

How to solve systems of linear equations algebraically (using substitution).
Math Practice # 1 Persevere in problem solving
Math Practice # 1 Persevere in problem solving

PLAY

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VIDEO Solving Linear Systems Using Substitution

Methods for solving systems

1.
2.

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DEFINITION: replacing one variable with an equivalent expression that contains the other variable, so that we can get a one-variable expression to solve.

Steps:

1st – If needed, solve one of the equations for a variable (x or y).

2nd – Substitute it into the other equation in place of the corresponding variable.

3rd – Solve the equation for the remaining variable.

4th –Replace your answer into one of the equation and solve for the remaining variable.

Ex 1: y= 5x -2 (Since both equations are solved for y, you can skip step 1)

y= 2x -11

2x - 11 = 5x -2 Solve for x

y = 5x -2

y = 2x - 11

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Steps:

If it's easy to do, solve both for a variable.

1st – If needed, solve one of the equations for a variable (x or y).

2nd – Substitute it into the other equation in place of the corresponding variable.

3rd – Solve the equation for the remaining variable.

4th –Replace your answer into one of the equation and solve for the remaining variable.

Ex 2: $3y + 2x = 4$

$-6x + y = -7$

Solve for y

$-6x + y = -7$

$+6x \quad +6x$

$y = 6x - 7$

$3y + 2x = 4$

$3(6x - 7) + 2x = 4$

solve for x.

$18x - 21 + 2x = 4$

$20x - 21 = 4$

$+21 \quad +21$

$\frac{20x}{20} = \frac{25}{20}$

$x = 1.25$

find y:

$3y + 2x = 4$

solve for y.

$3y + 2(1.25) = 4$

$3y + 2.5 = 4$

$-2.5 \quad -2.5$

$\frac{3y}{3} = \frac{1.5}{3}$

$y = 0.5$

check in

$-6x + y = -7$

$-6(1.25) + 0.5 \stackrel{?}{=} -7$

$-7.5 + 0.5 = -7$

$-7 = -7$ ✓

Solution $(1.25, 0.5)$

Attachments

VIDEO