

What's Going On?

Checking In

F.F.M.

Minds on

Get it?

Action!

Step by Step

Consolidation

Back to our "good" solutions

Learning Goal - I will be able to solve linear systems by substitution.

Checking In

F.F.M.

Solve this linear system by substitution.

$2x + 3y = 5$ ① Rearrange ② for x

$x - 4y = -14$ ② $x - 4y = -14$
 $+4y \quad +4y$
 $x = 4y - 14$

Substitute $x = 4y - 14$ into ①

$2(4y - 14) + 3y = 5$

$8y - 28 + 3y = 5$
 $+28 \quad +28$

$11y = 33$

$y = 3$

Substitute $y = 3$ into

$x = 4(3) - 14$

$x = 12 - 14$

$x = -2$

$(x, y) = (-2, 3)$



Checking In

F.F.M.

Solve this linear system by substitution.

$$2x + 3y = 5$$

$$x - 4y = -14$$

We said the solution is $(x, y) = (-2, 3)$.

If this is true, the point $(-2, 3)$ will satisfy both original equations.
L.S. R.S. Checks!

$$\begin{array}{l} \text{L.S.} \\ 2(-2) + 3(3) \\ = -4 + 9 \\ = 5 \end{array} \quad \begin{array}{l} \text{R.S.} \\ 5 \end{array}$$

L.S. = R.S.

$$\begin{array}{l} \text{L.S.} \\ (-2) - 4(3) \\ = -2 - 12 \\ = -14 \end{array} \quad \begin{array}{l} \text{R.S.} \\ -14 \end{array}$$

L.S. = R.S.

✓
The point satisfies both equations.
∴ the point is on both lines and is the solution.

Consolidation

Get it? A Little Tougher?

What is the solution to the system of linear equations below?

$$2x + 2y = 7 \quad \textcircled{1}$$

$$\underline{x} + \underline{y} = 6 \quad \textcircled{2}$$

Rearrange $\textcircled{2}$ for
x or y!

$$\begin{array}{r} x + y = 6 \\ -y \quad -y \\ \hline x = 6 - y \end{array}$$

Substitute $x = 6 - y$ into $\textcircled{1}$

$$2(6 - y) + 2y = 7 \quad \text{??}$$

$$12 - 2y + 2y = 7$$

$$12 = 7$$

Consolidation

A Little Tougher?

What is the solution to the system of linear equations below?

$2x - y - 3 = 0$ ① *Rearrange ① for y .*

$6x - 3y - 9 = 0$ ② $2x - y - 3 = 0$

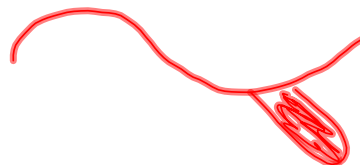
$2x - 3 = y$

$y = 2x - 3$

Substitute $y = 2x - 3$ into ②

$6x - 3(2x - 3) - 9 = 0$

~~$6x - 6x + 9 - 9 = 0$~~ ?



Action!

Step by Step

Given a system a linear equations, what are the steps you take to "solve" it?

$$2x + 3y = 5$$

$$x - 4y = -14$$

Action!

What makes a "good" solution?

- Showed their work
- Organized
- Clear
- Not complicated
- Correct
- Graphs/Equations Labeled
- Therefore statement
- Pencil
- ~~§~~ Steps are in order
- Solution has been checked