Cornell Notes	Topic/Objective:	Name:
AVID Decades of College Dreams	Solving Systems of Equations (SoE)	Class/Period: Alg. 1, 2°
		Date: Oct. 12, 2009

Essential Question: How do you solve (SoE) by substitution?

→ solution will be an ordered pair like (3,2)

Questions:

What is a system of linear eq.?

What are the steps to solving SoE by sub.?

Notes

System of Linear equations (SoE) - 2 or more linear equations in the same variables.

Steps to Solving by sub:

1. Solve 1 eq for its variable. (if possible, Solve for variable w/ coeff. of 1 or -1.
2. Sub the expression from Step 1 into other eq.
3. Solve that eq. to get value of 1st var.
4. Sub value of 1st var. into original eq. & solve for 2nd var.
5. Write the values from #3 & #4 as an ordered pair.
6. Check ?

Ex. Solve

$y = 3x + 2$ (Eq. #1)

$x + 2y = 11$ (Eq. #2)

Step 1 $y = 3x + 2$ ← Eq. 1 already solved for y.

$x + 2y = 11$

Summary:

Questions:

How do I apply the steps of solving (SoE) to the (SoE)

$y = 3x + 2$

$x + 2y = 11$

Notes:

Step 2

$y = 3x + 2$

$x + 2y = 11$

$x + 2(3x+2) = 11$ — Sub. $3x+2$ for y in 2nd eq.

Step 3

$x + 6x + 4 = 11$ — Simplify (Use Dist.) (Collect terms)

$7x + 4 = 11$

$-4 \quad -4$ — Subtract 4 from both sides

$\frac{7x}{7} = \frac{7}{7}$ — ÷ by 7 (to isolate the variable)

$x = 1$

Step 4

$y = 3x + 2$ — Write 1st eq.

$y = 3(1) + 2$ — Sub. 1 for x

$y = 3 + 2$ — Simplify for y

$y = 5$

Step 5

$(1, 5)$ — Write SoE as ordered pair

* Check: ?

Eq. 1

$y = 3x + 2$

$5 = 3(1) + 2$

$5 = 3 + 2$

$5 = 5$ ✓

Eq. 2

$x + 2y = 11$

$1 + 2(5) = 11$

$1 + 10 = 11$

$11 = 11$ ✓

On my test, do I need to check my answers in both equations? or just one?

Summary:

Questions:

How do I apply the process for solving $y = 3x + 2$ $x + 2y = 11$ to the (SoE) $y = 2x + 1$ $2y - x = 11$?

How is solving SoE using sub diff. than graphing?

Notes:

Step 1
$y = 2x + 1$
$2y - x = 11$

Step 2
$2(2x+1) - x = 11$

Step 3
$4x + 2 - x = 11$
$3x + 2 = 11$
$-2 \quad -2$
$\frac{3x}{3} = \frac{9}{3}$
$x = 3$

Step 4
$y = 2(3) + 1$
$y = 6 + 1$
$y = 7$

Step 5
(3, 7) - ordered pair

Step 5
Check:

Eq. 1
$7 = 2x + 1$
$7 = 2(3) + 1$
$7 = 6 + 1$
$7 = 7$ ✓

Eq. 2
$2y - x = 11$
$2(7) - 3 = 11$
$14 - 3 = 11$
$11 = 11$ ✓

(Same process for both SoE)

- Graphing not good for getting an exact intersection point.
- Substitution - get an ordered pair.

Summary: A system of linear equations is two or more linear equations with the same variables. The sub. method has you isolate one variable in an equation and plug it into the other equation. Following these five steps and checking my answer will ensure the my ordered pair is the correct solution.