Match the solutions with the systems.

1. $y = 9x - 8$

   $y = -14x + 15$

   c. (1, 1)

2. $y = 4x + 4$

   $y = 15x + 4$

   e. (0, 4)

3. $y = 3x - 4$

   $y = 2x - 2$

   d. (2, 2)

4. $y = 2x - 4$

   $y = \dfrac{-1}{2}x + 1$

   a. (2, 0)

5. $3x + 6y = 15$

   $-2x + 3y = -3$

   b. (3, 1)

Homework Questions?

Self Scoring Scale

4- I can *summarize* the concepts and explain it to others.

3- I can *apply* the concepts to answer questions correctly.

2- I can *apply* the concepts but with some *mistakes*.
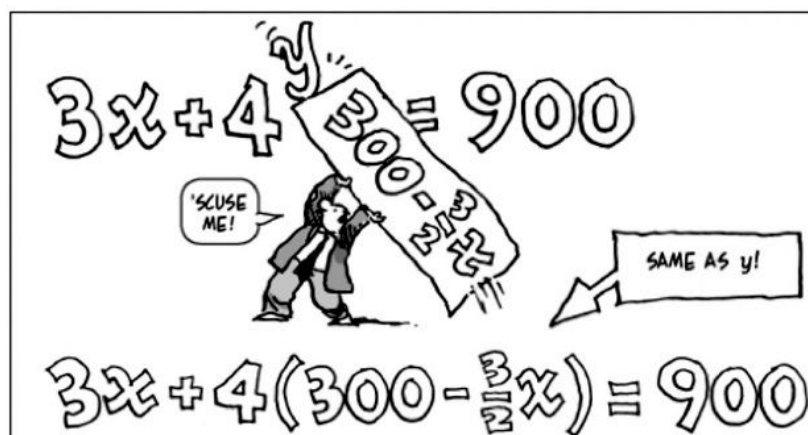
1- I *need help* to know how to apply the concepts.

0- I *can't* apply the concepts even with help.

7.2 Solving Linear Systems by Substitution

Goals: • Solve a linear system by substitution.

EQ: Write the steps for solving by substitution.

The Unit Organizer

④ BIGGER PICTURE

NAME _____ Your Name
DATE _____ Mo/Date/Year

Algebra 1.5

② LAST UNIT/Experience	① CURRENT UNIT	③ NEXT UNIT/Experience
Inequalities	Systems	Exponents

⑧ Student Activities or Assignments

7.1
7.2
7.3
7.4
7.5
7.6

⑤ UNIT MAP

is about...

Solving linear systems of equations and inequalities

by → Graphing systems

by → Graphing Linear inequalities

using → The Substitution method

using → Linear Combinations

including → Real Life Applications

1. Using addition
2. Using multiplication first
3. Arranging like terms first

UNIT SELF-TEST QUESTIONS

1. How do you solve a system by graphing?
2. How is the substitution method used to solve a system?
3. How do you use linear combinations to solve a system?
4. How can you represent and solve a real world situation with a system of equations?
5. How do you determine the number of solutions a system has?
6. How do you graph a system of linear inequalities and determine the solution area?

⑦

⑥ UNIT RELATIONSHIPS

Solve
Graph
Represent
Apply

Substitution Method:　　A method to algebraically solve a linear system.

1)　Solve one of the equations for one of its _____.

2)　Substitute the expression from Step 1 into the other equation and solve for the _____.

3)　Substitute the value from _____ into the revised equation from _____ and solve.

4)　Check the solution in each of the _____ equations.

Use substitution to solve the linear system.

Sub

a) $x = (-2y + 6)$ $\longrightarrow$ $x = -2(2) + 6$

$3x - 2y = 2$ $x = -4 + 6$

WORKING $\boxed{x = 2}$

$3(-2y + 6) - 2y = 2$

$-6y + 18 - 2y = 2$ $(2, 2)$
                     $x \quad y$

$-8y + 18 = 2$ $2 = -2(2) + 6$
$\quad -18 \; -18$ $2 = 2 \checkmark$

$-8y = -16$
$\overline{-8} \quad \overline{-8}$ $3(2) - 2(2) = 2$

$\boxed{y = 2}$ $2 = 2 \checkmark$
        $\boxed{\therefore yes, (2,2) \text{ is soln}}$

b) $y = (7 - 4x)$ $\longrightarrow$ $y = 7 - 4(2)$

$2x + 5y = -1$ $y = 7 - 8$

$2x + 5(7 - 4x) = -1$ $\boxed{y = -1}$

$2x + 35 - 20x = -1$ $(2, -1)$

$-18x + 35 = -1$
$\quad -35 \quad -35$ $-1 = 7 - 4(2)$ $2(2) + 5(-1) = -1$

$-18x = -36$ $-1 = -1 \checkmark$ $-1 = -1 \checkmark$
$\overline{-18} \quad \overline{-18}$

$\boxed{x = 2}$ $\boxed{\therefore yes, (2, -1) \text{ soln}}$

c) $2x - 4y = 6$ $\longrightarrow$ $2(-3y+3)-4y=6$

$x = (-3y + 3)$ $(-6y)+(6-4y)=6$

$x = -3(0)+3$ $-10y+6=6$

$x = 3$ $-6 \quad -6$

$(3,0)$ $\dfrac{-10y}{-10} = \dfrac{0}{-10}$

$2(3)-4(0)=6$ $3 = -3(0)+3$ $y = 0$

$6=6 \checkmark$ $3 = 3 \checkmark$

$\therefore Yes, (3,0)$ is soln

---

d) $y = x - 1$ $\longrightarrow$ $y = 5-1$

$x - 5y = -15$ $y = 4$

$x - 5(x-1) = -15$ $(5,4)$

$x - 5x + 5 = -15$

$-4x + 5 = -15$ $4 = 5-1$ $5-5(4)=-15$

$-5 \quad -5$ $4 = 4 \checkmark$ $5-20=-15$

$\dfrac{-4x}{-4} = \dfrac{-20}{-4}$ $-15=-15 \checkmark$

$x = 5$ $\therefore Yes, (5,4)$ is soln

SUMMARY

EQ: Write the steps for solving by substitution in your own words.

1) Eqn is variable by itself
2) Plug ( ) into other eqn
3) Solve for variable
4) Sub in variable to Eqn
5) Solve for other variable
6) (x,y) ✓ pt in original eqns

7.2 Homework

Alg Concepts Substitution wkst #1-12