First: Fractions Skills Quiz

Today's Learning Goal(s):

By the end of the class, I will be able to:

a) Solve a linear system using the method of substitution and check the answer.

Discuss:
missing quizzes...discuss/correct/return
SWYK 1.1 Monday
questions from previous homework?

Before we begin, are there any questions from last day's work?

MPM 2DI **1.2 Solve by Substitution** (Day 1) Date: Sept. 9/16

Concept

When substituting, we replace the variable with brackets and the value of the variable.

If $y = 3x + 10$, find "y" if:

a) $x = 2$

$y = 3(2) + 10$
$= 6 + 10$
$= 16$

b) $x = 2y$

$y = 3(2y) + 10$
$y = 6y + 10$
$y - 6y = 10$
$-5y = 10$
$\frac{-5y}{-5} = \frac{10}{-5}$
$y = -2$

c) $x = 2y - 5$

$y = 3(2y - 5) + 10$
$y = 6y - 15 + 10$
$y - 6y = -5$
$-5y = -5$
$\frac{-5y}{-5} = \frac{-5}{-5}$
$y = 1$

The Method of Substitution

1) Isolate one variable in either equation.
2) Substitute your answer from step 1) into the other equation.
3) Solve the new equation.
4) Substitute your first answer (variable) into the **original** equation ①.
5) Check your answers (both variables) in the **original** equation ②.

Ex. 1 Solve the system by substitution:

$3x - y = 18$ ①
$2x + 5y = -5$ ②

Substitute in other equation.

Isolate y in ①
$3x - y = 18 \rightarrow 3x - 18 = y$
$-y = -3x + 18$
$\frac{-y}{-1} = \frac{-3x}{-1} + \frac{18}{-1}$
$y = 3x - 18$

$2x + 5(3x - 18) = -5$
$2x + 15x - 90 = -5$
$17x = -5 + 90$
$17x = 85$
$\frac{17x}{17} = \frac{85}{17}$
$x = 5$

Sub $x = 5$ in ①
$3(5) - y = 18$
$15 - y = 18$
$15 - 18 = y$
$-3 = y$

(5 , - 3)

Check $x = 5, y = -3$ in ②
$LS = 2x + 5y$ $RS = -5$
$= 2(5) + 5(-3)$
$= 10 - 15$ $\because LS = RS$
$= -5$ $\therefore x = 5, y = -3$ is correct.

Ex. 2 Solve the system by substitution:

$x - 2y = 7$ ①

$2x - 3y = 13$ ②

① → $x = 2y + 7$

Sub in ①

$2(2y+7) - 3y = 13$

$4y + 14 - 3y = 13$

$y = 13 - 14$

$y = -1$

Sub in ①

$x - 2(-1) = 7$

$x + 2 = 7$

$x = 7 - 2$

$x = 5$

Check in ②

LS $= 2x - 3y$ RS $= 13$

$= 2(5) - 3(-1)$

$= 10 + 3$

$= 13$

$\therefore$ LS = RS

$\therefore (5, -1)$ is correct.

Today's substuon pracce:
p. 26 #1b, 2, 3, 4c*d, 5*a
*no checking is required

Make sure you read the comments column.
(on the unit outline)
#1b Variable is already isolated.
#2 Isolate a variable then stop.

Checks required for 1b, 3, 4d

Monday there is a quiz on graphing a line.

NOTE: I will not be handing out a copy of Monday's lesson, but you may choose to print it out in advance.