Unit 3 Linear Equations **Name:** _____

Day 2 Solve Systems with Substitution **Date:** _____ **Hour:** _____

(PH 7-2)

Example 1: Solve using substitution.

a.
$$\begin{aligned} y &= -4x - 8 \\ y &= x + 7 \end{aligned}$$

b.
$$\begin{aligned} y &= 2x \\ 7x - y &= 15 \end{aligned}$$

To use the substitution method, you must have an equation that has already been solved for one of the variables. Solving for a variable that has a coefficient of 1 or -1 is a good place to start.

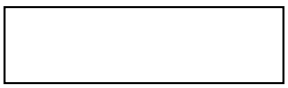
Example 2: Solve using the substitution method.

Step 1: Solve one of the equations for one of the unknowns.
Step 2: Substitute the expression found in Step 1 into the ***other*** equation and solve.
Step 3: Substitute the value found in Step 2 back into one of the equations and solve for the other unknown.

a.
$$\begin{aligned} 3x + 2y &= 16 \\ -6x + y &= -7 \end{aligned}$$

b.
$$\begin{aligned} -2x + y &= -1 \\ 4x + 2y &= 14 \end{aligned}$$

Example 3: A rectangle is 4 times longer than it is wide. The perimeter of the rectangle is 30 cm. Find the dimensions of the rectangle.



Example 4: Your school committee is planning an after school trip for 193 people to a competition at another school. There are 8 drivers available and two types of vehicles, school buses and mini vans. The school buses seat 51 people each and the mini vans seat 8 people each. How many buses and mini vans will be needed?

Homework: pages 349-351 #5 – 17 odd, 23, 37, and 40 (10 exercises)