(A) Lesson Context

BIG PICTURE of this UNIT:	• mastery with algebraic manipulations/calculations involving linear systems • proficiency in working with graphic and numeric representations of linear systems • proficiency in working with linear systems in real world scenarios		
CONTEXT of this LESSON:	Where we've been Lesson 4 reviewed graphic methods for solving linear systems	Where we are Consolidating skills in solving a linear systems algebraically	Where we are heading Mastery of solving & applying linear systems

(B) Lesson Objectives:

a. Consolidate skills involved when solving linear systems using the substitution method.
b. Solve word problems modelled by linear systems using algebraic methods

(C) Skill Consolidation – Algebra Skills ➔ Isolating a Variable

a. Isolate the *y* term in the following equations:

(i) $2x - y = 7$ (ii) $3x + y = 12$ (iii) $3x - 2y = 6$ (iv) $5x + ½y - 2 = 0$

b. Isolate the *x* term in the following equations:

(i) $x - 5y = 7$ (ii) $-3x + y = 12$ (iii) $5x - 2y = 6$ (iv) $0.25x + y - 2 = 0$
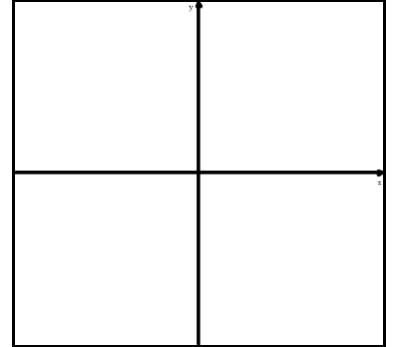
c. Simplify and solve the following expressions

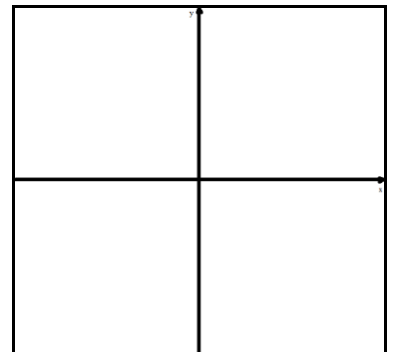(i) $3x + (x-3) = 9$ (ii) $-4y + 3(2y - 5) = 12$ (iii) $2x - (x - 2) = 5$

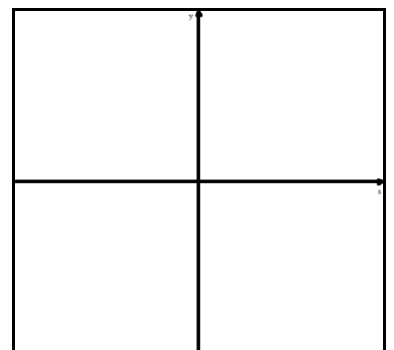**(D)SUBSTITUTION Examples: Solve and verify the following linear systems:**

(i) $y = 2x - 4$ and $y = -x + 5$ 　　　　　**Algebraic Verification:** 　　　　　**Graphic Verification:**

(ii) $2x + 3y - 9 = 0$ and $y = -x - 2$ 　　　　**Algebraic Verification:** 　　　　　**Graphic Verification:**
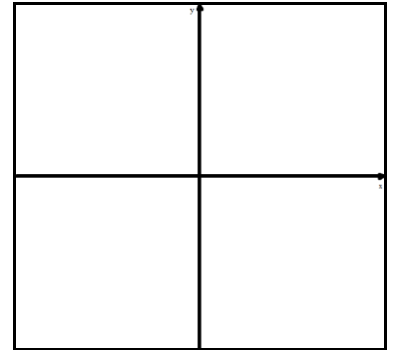
(iii) $y = 5x - 2$ and $6x + 3y = 36$ 　　　　　**Algebraic Verification:** 　　　　　**Graphic Verification:**

(iv) Solve the system $\begin{aligned} 4x + 2y &= 10 \\ 3y - 6x &= 9 \end{aligned}$ **Algebraic Verification:**   **Graphic Verification:**

(E) Applications of Linear Systems

Ex 1. To raise money for a local shelter, some grade 10 students held a car wash and charged $6 per car and $8 per van. They washed 53 vehicles and raised $382. How many of each type of vehicle did they wash?

(a) Define 2 variables that you will use in answering this question.
(b) Write an equation to describe the number of vehicles washed.
(c) Write an equation to describe the amount of money raised in terms of the number each type of vehicle.
(d) Solve for one variable in your equation for part (a)
(e) Substitute your expression from part (c) into the equation for part (b). Solve the new equation.
(f) Now answer the actual question ➔ how many cars and how many vans did they wash?

(F) **Application of Linear Systems**

Ex 1. Mr. S. has $18,000 savings in 2 accounts. My total interest earned for the year was $930. One account earns me 6% annual interest and the other account earns me 3% annual interest. How much do I have in each account?

Solution Set-up ➜ define 2 variables, then write 2 relevant equations
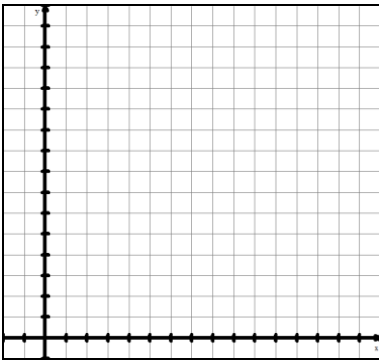
Graphic Soln   Algebraic Solution   Algebraic Verification

(G) **HOMEWORK ➜ For Further Practice:**

a. Nelson 10 Chap 1.4, p38-40, Q4, 5bcd, 6, 7, 9cd, 10, 12, 15

(H) **Extra Help ➜**

a. WORKED EXAMPLES at
http://infinity.cos.edu/algebra/ProblemsSolved/Chapter%2004/Chapter%204_Word%20Problems.pdf
b. More worked and very well explained examples at http://www.algebra-class.com/solving-systems-of-equations.html
c. Video Help #1 ➜ http://www.youtube.com/watch?v=il2Mf5706hk
d. Video Help #2 ➜ http://www.youtube.com/watch?v=V-gmMeHiY5c&feature=relmfu