

Date:

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(A) **Lesson Objectives:**

- Algebraically, using substitution, determine the intersection point of two lines and algebraically verify the intersection point. (REVIEW)
- Algebraically, using elimination, determine the intersection point of two lines and verify the intersection point. (REVIEW)
- Verify a solution to a linear system. (REVIEW)
- Identify under which conditions one method is more convenient than another. (NEW)
- Understand that linear systems can have no solutions, a unique solution, or infinite solutions. (NEW)

(B) **Examples for Classwork**

- a. SUBSTITUTION Examples: Solve and verify the following linear systems:

|                                 |                                       |
|---------------------------------|---------------------------------------|
| $y = 2x - 4$ and $y = -x + 5$   | $2x + 3y - 9 = 0$ and $x - y - 2 = 0$ |
| $y = 5x - 2$ and $6x + 3y = 36$ | $x + 4y = -10$ and $2x + y = 1$       |

- b. ELIMINATION Examples: Solve and verify the following linear systems:

|  |                                  |
|--|----------------------------------|
| $2x - 2y - 14 = 0$<br>$-2x + 4y - 4 = 0$ | $3x - 2y = 17$<br>$-6x - 2y = 8$ |
| $4x = 9 - y$<br>$3y - 6x = 9$            | $2y + 4 = 6x$<br>$y + 3x = 1$    |

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- (C) Guarantee Pool Repair Services charges \$50 for a service call and \$40/hour for labour. Oasis Pools and Spas charges \$30 for a service call plus \$45 for labour. Find the length of a service call for which both companies charge the same amount
- (D) Regina is training for the upcoming cross country season. She needs to design a daily 45 minute workout using a combination of a stationary bike and a treadmill. To be in top shape, she should burn 400 calories in her workout. On a bike, she burns 8 cal/min and on the treadmill she burns 10 cal/min. How many minutes should she train on each piece of equipment?
- (E) As the owner of a banquet hall, you are in charge of catering a reception. There are 2 dinners: a chicken dish that costs \$16 and a beef dish that costs \$18. The 300 wedding guests have ordered the dinners in advance and the total cost to prepare the dinners is \$5256. How many of each type of dinner are you preparing?
- (F) **Homework/Resources**
- HOMEWORK: from the Nelson Textbook: S1.8, p92-95, Q1,3,7,8,11
  - HOMEWORK: from the Nelson Textbook: S1.9, p101-104, Q2adf,3adf,4,6acegik,7,8
  - Help from OnlineMathLearning with substitution → <http://www.onlinemathlearning.com/solving-systems-of-equations-3.html>
  - Help from OnlineMathLearning with elimination → <http://www.onlinemathlearning.com/systems-of-linear-equations-2.html>