

## Day 4 Class Work



MAC1105

Day 4 Classwork : Solve Systems of Two Equations

Name \_\_\_\_\_ Score \_\_\_\_\_

Solve the system by the elimination method. If the equations are dependent, write with  $x$  being arbitrary.

$$1) \begin{cases} x + 4y = 13 \\ 2x + 3y = 6 \end{cases} \rightarrow \begin{array}{r} -2x - 8y = -26 \\ 2x + 3y = 6 \\ \hline -5y = -20 \\ y = 4 \\ x + 4(-4) = 13 \\ x + 16 = 13 \\ x = -3 \end{array} \quad \{(-3, 4)\}$$

$$2x + 3(4) = 6$$

$$2x + 12 = 6$$

$$2x = -6$$

$$x = -3 \quad \checkmark$$

Solve the system by the substitution method. If the equations are dependent, write with  $y$  being arbitrary.

$$2) \begin{cases} 8y - 8 = -x \\ 4x - 7y = -7 \end{cases} \rightarrow \begin{array}{l} x + 8y = 8 \rightarrow x = 8 - 8y \\ 4x - 7y = -7 \end{array}$$

$$4(8 - 8y) - 7y = -7$$

$$32 - 32y - 7y = -7$$

$$-39y = -39$$

$$y = 1$$

$$x = 8 - 8(1) = 0$$

$$x = 0$$

$$x = 0$$

Solve the problem.

- 3) A student takes out two loans totaling \$8000 to help pay for college expenses. One loan is at 6% simple interest, and the other is at 5% simple interest. The first-year interest is \$420. Find the amount of the loan at 5%.

$$0.06x = 200$$

$$x = 2000$$

$$x = 6000$$

$$x + y = 8000 \rightarrow x = 8000 - y$$

$$0.05x + 0.06y = 420$$

$$(0.05)(8000 - y) + 0.06y = 420$$

$$400 - 0.05y + 0.06y = 420$$