Chapter 4 and Sect 9.4 Unit Test - Systems of Equations

Name_____Section_____

Be sure to show all your work and circle your answer.

Solve the following system by graphing:

1) $y = -2x + 1$
$4x - y = 5$

Solve the following system by substitution:

2) $x - 3y = 5$
$2x + 3y = 4$

Solve using any method:

3) $4x - 5y = 2$
$3x - 4y = 1$

4) $5y = 6x - 3$
$x = \frac{2y-1}{3}$

5) $-4x - 3y = 6$
$4.5y = -6x + 2$

6) $3x + 4y = 1$
$8x + 3y = 18$

7) $3.2x + 4.6z = 4$
$8x + 11.5z = 10$

Solve using Cramer's Rule if possible:

8) $5x - 3y = 4$
$2x + 5y = 1$

9) $-2x + 3y = 12$
$5x - 7.5y = -15$

Set-up the system equations and solve the following:

10) Eight lollipops and three chocolate bars costs $4.09. Five lollipops and seven chocolate bars costs $4.76. How much does each cost?

11) In a vending machine, there were 27 coins, all dimes and quarters. If the total value of the money was $5.10, how many dimes were there?

Set-up the system equations and solve the following:

12) Simon needs to mix a 36% saline solution with a 48% saline solution to produce of 450 ml of a 44% saline solution. How many ml of each solution does he need?

13) Latisha invested $9500 in two different accounts, one earning 8%, and the second earning 5%. If the total interest she earned was $580, how much was invested in each account?

14) In flying out of Dallas, a plane flew into a steady wind of 40 mph and took eight hours to reach its destination. On the return trip to Dallas with the wind, the plane covered the same distance in six hours. What was the plane's speed in still air and what was the distance traveled on each leg?

15) In a recent small town election, Benito Recounter received 1443 votes out of 2204 total votes to become the new mayor. If $\frac{3}{4}$ of the women and $\frac{5}{9}$ of the men voted for her, how many men and how many women voted?

16) Maylina buys three packages of Skittles and two bottles of soda for $4.60. Zoë buys six packages of Skittles and three bottles of soda for $7.95. Find the cost of one package of Skittles and one bottle of soda.

Answer Key:

1) $(1, -1)$ 2) $(3, -\frac{2}{3})$ 3) $(3, 2)$ 4) $(-\frac{11}{3}, -5)$ 5) No Solution

6) $(3, -2)$ 7) $\{ (x, z) \mid 3.2x + 4.6z = 4 \}$ 8) $\left(\frac{23}{31}, -\frac{3}{31} \right)$

9) No solution
10) Each lollipop costs 35¢ and each chocolate bars costs 43¢.
11) There were 11 dimes.
12) He will need 150 ml of the 36% solution and 300 ml of 48% solution.
13) $3500 was invested at 8% and $6000 was invested at 5%
14) The distance was 1920 miles.
15) 1080 men and 1124 women voted in the election.
16) One bag of Skittles costs $0.70 and one bottle of soda costs $1.25.