**Name**

**Date**  **Period**

Solving Systems of Equations in Two Variables:

**Part 1:** Solve each system of equations by elimination. Then graph the solution.

1. 4x − 2y = 20 2. 0.2x + 0.6y = -1

−8x − 3y = 16 x – 0.5y = 2

3. 3x + 11y = 4 4. 3.1x – 2.9y = -10.2

-2x – 5y = 9 31x – 12y = 34

5. 0.03x + 0.04y = 0.75 6. x – 5y = 21

0.02x + 0.06y = 0.90 6x + 5y = 21

**Part 2:** Solve each system of equations using elimination and determine the number of solutions. Then match the system to the corresponding graph.

1. b. c.

d. e.

1. 8x – 14y = 5 2. 0.5x + 2.2y = 9

2x – 3.5y = 1.25 6x + 0.4y = -22

3. 3/5x – y = 3 4. 1/3x + y = -1/3

-3x + 5y = 9 5x – 3y = 7

5. 4y = -8

7x – 2y = 25

**Part 3:** Determine whether or not each problem can be solved using systems of equations. If it can be, then set up the proper equations and solve for the unknowns.

1. Two planes start from Boston’s Logan International Airport and fly in opposite directions. The second plane starts ½ hour after the first plane, but its speed is 80 kilometers per hour faster. Find the airspeed of each plane if 2 hours after the first plane departs, the planes are 3200 kilometers apart.
2. A minor league baseball team had a total attendance one evening of 1175. The tickets for adults and children sold for $5.00 and $3.50, respectively. The ticket revenue that night was $5087.50. Find the numbers of adults (A) and children (C) that attended the game.
3. A small corporation borrowed $1,500,000 to expand its line of shoes. Some of the money was borrowed at 7%, some at 8% and some at 10%. Determine how much was borrowed at ecah rate if the annual interest was $130,500 and the amount borrowed at 10% was four times the amount borrowed at 7%.
4. On Saturday night, the manager of a shoe store evaluates the receipts of the previous week’s sales. Two hundred fifty pairs of two different styles of running shoes were sold. One style sold for $75.50 and the other sold for $89.95. The receipts totaled $20,031. The cash register that was supposed to record the number of each type of shoe sold malfunctioned. Can you recover the information? If so, how many shoes of each type were sold?
5. A grocer sells oranges for $0.95 each and grapefruits for $1.05 each. You purchase a mix of 16 oranges and grapefruits and pay $15.90. How many of each type of fruit did you buy?

**Answers:**

Part 1:

1. (1, -8)
2. (1, -2)
3. (-17, 5)
4. (130/31, 8)
5. (9, 12)
6. (6, -3)

Part 2:

1. Inifinitely many solutions; graph c
2. (-4, 5); graph a
3. No solution; graph e
4. (1, -2/3); graph b
5. (3, -2); graph d

Part 3:

1. Yes. First plane: 880 kilometers per hour

Second plane: 960 kilometers per hour

1. Yes. A = 650

C = 525

1. No, cannot be solved using this method.
2. Yes. $75.50 shoes: 170 pairs

$89.95 shoes: 80 pairs

1. Yes. 9 oranges and 7 grapefruits

Grading Criteria:

Grading will be based on completion and knowledge of the material. Part 1 questions will be worth 5 points, part 2 questions will be worth 6 points and part 3 questions will be worth 8 points.

A: 93-100 B: 86-92 C: 78-85 D: 70-77 F: 69 or below