

Assignment

Date _____ Period _____

Solve each system by Elimination.

$$\begin{aligned} 1) \quad & 8x + 3y = 9 \\ & x - 3y = 18 \end{aligned}$$

$$\begin{aligned} 2) \quad & 2x + 9y = -18 \\ & 13x + 9y = 81 \end{aligned}$$

$$\begin{aligned} 3) \quad & 11x - 5y = 40 \\ & 3x + 5y = 30 \end{aligned}$$

$$\begin{aligned} 4) \quad & 5x - 7y = 21 \\ & x + 7y = -63 \end{aligned}$$

$$\begin{aligned} 5) \quad & 8x + 3y = 18 \\ & 7x - 3y = 27 \end{aligned}$$

$$\begin{aligned} 6) \quad & 11x - y = -6 \\ & 2x + y = -7 \end{aligned}$$

$$\begin{aligned} 7) \quad & 16x + 7y = -63 \\ & x + 7y = 42 \end{aligned}$$

$$\begin{aligned} 8) \quad & 11x - 9y = 81 \\ & 2x + 9y = 36 \end{aligned}$$

$$\begin{aligned} 9) \quad & 3x + 2y = 18 \\ & 5x - 2y = 14 \end{aligned}$$

$$\begin{aligned} 10) \quad & 16x + 13y = 221 \\ & 4x - 13y = 39 \end{aligned}$$

$$\begin{aligned} 11) \quad & 22x - 7y = -63 \\ & 4x - 7y = 63 \end{aligned}$$

$$\begin{aligned} 12) \quad & 23x + 9y = -153 \\ & 2x - 9y = -72 \end{aligned}$$

$$\begin{aligned} 13) \quad & x - 16y = -272 \\ & 31x + 16y = -240 \end{aligned}$$

$$\begin{aligned} 14) \quad & 5x + 13y = 195 \\ & 24x - 13y = 182 \end{aligned}$$

$$\begin{aligned} 15) \quad & 2x + y = 8 \\ & 7x - y = 1 \end{aligned}$$

$$\begin{aligned} 16) \quad & 3x + 2y = -18 \\ & x - 2y = 34 \end{aligned}$$

Answers to Assignment (ID: 1)

1) (3, -5)

2) (9, -4)

3) (5, 3)

4) (-7, -8)

5) (3, -2)

6) (-1, -5)

7) (-7, 7)

8) (9, 2)

9) (4, 3)

10) (13, 1)

11) (-7, -13)

12) (-9, 6)

13) (-16, 16)

14) (13, 10)

15) (1, 6)

16) (4, -15)

Assignment

Solve each system by elimination.

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

2) $-3x + y = 16$
 $-3x + 6y = 6$

3) $2x - 4y = -8$
 $2x - 6y = -6$

4) $14x + 10y = -10$
 $-7x - 3y = -11$

5) $6x + 3y = 24$
 $3x - 9y = 12$

6) $-6x - 8y = -20$
 $-12x + 9y = -15$

7) $7x + 6y = 22$
 $-2x - 12y = 4$

8) $4x + 5y = -6$
 $6x + 3y = -18$

9) $-10x - 9y = 14$
 $7x + 8y = -20$

10) $8x - 5y = 26$
 $3x + 3y = 0$

11) $-7x - 8y = -14$
 $5x + 3y = -9$

12) $-14x + 5y = -27$
 $3y = -7x + 30$

13) $10y = 1 + 7x$
 $30 + 14x = 6y$

14) $20x + 5y + 20 = 0$
 $-2y - 10 - 10x = 0$

15) $4y - 22 = -14x$
 $8y = 7x + 9$

Answers to Assignment (ID: 1)

1) $(2, 0)$

2) $(-6, -2)$

3) $(-6, -1)$

4) $(5, -8)$

5) $(4, 0)$

6) $(2, 1)$

7) $(4, -1)$

8) $(-4, 2)$

9) $(4, -6)$

10) $(2, -2)$

11) $(-6, 7)$

12) $(3, 3)$

13) $(-3, -2)$

14) $(-1, 0)$

15) $(1, 2)$

Write each system of equations. Solve 5. Check your work.

Date _____

(on this worksheet)

(on paper)

1) John spent \$28 on eating utensils. Spoons cost \$6 and forks cost \$5. If he bought a total of 5 then how many of each kind did he buy?

2) Nicole bought 9 writing utensils for a total of \$27. Pens cost \$4 and pencils cost \$1. How many of each writing utensil did she buy?

3) Bill bought 7 writing utensils for a total of \$33. Pens cost \$6 and pencils cost \$3. How many of each writing utensil did he buy?

4) Kristin bought 9 books for a total of \$570. Math books cost \$60 and science books cost \$70. How many of each type of book did she buy?

5) Elisa spent \$145 on shirts. Fancy shirts cost \$20 and plain shirts cost \$13. If she bought a total of 9 then how many of each kind did she buy?

- 6) Jasmine bought 5 writing utensils for a total of \$13. Pens cost \$2 and pencils cost \$3. How many of each writing utensil did she buy?
- 7) There are 29 animals in the barn. Some are ducks and some are sheep. There are 98 legs in all. How many of each animal are there?
- 8) There are 19 animals in the field. Some are horses and some are chickens. There are 70 legs in all. How many of each animal are in the field?
- 9) Maria bought 7 shirts for a total of \$127. Fancy shirts cost \$26 and plain shirts cost \$15. How many of each type of shirt did she buy?
- 10) All 199 students in the Math Club went on a field trip. Some students rode in vans which hold 8 students each and some students rode in buses which hold 35 students each. How many of each type of vehicle did they use if there were 8 vehicles total?

11) There are 12 animals in the field. Some are horses and some are chickens. There are 28 legs in all. How many of each animal are in the field?

12) A farmhouse shelters 16 animals. Some are cows and some are ducks. Altogether there are 60 legs. How many of each animal are there?

13) A class of 366 students went on a field trip. They took 12 vehicles, some vans and some buses. Find the number of vans and the number of buses they took if each van holds 6 students and each bus hold 55 students.

14) There are 6 animals in the field. Some are buffalo and some are ducks. There are 16 legs in all. How many of each animal are in the field?

- 15) A class used cars and vans to go on a field trip because all of the buses were already in use. They used 15 vehicles to go on the trip. Each car holds 3 students and each van holds 10 students. If 101 students went on the trip then how many of each type of vehicle did the class use?
- 16) Shayna spent \$20 on writing utensils. Pens cost \$4 and pencils cost \$1. If she bought a total of 8 then how many of each kind did she buy?

Answers to Write each system of equations. Solve 5. Check your work. (ID: 1)

- 1) 3 spoons and 2 forks 2) 6 pens and 3 pencils 3) 4 pens and 3 pencils
4) 6 math books and 3 science books 5) 4 fancy shirts and 5 plain shirts
6) 2 pens and 3 pencils 7) 9 ducks and 20 sheep 8) 3 chickens and 16 horses
9) 2 fancy shirts and 5 plain shirts 10) 3 vans and 5 buses 11) 10 chickens and 2 horses
12) 2 ducks and 14 cows 13) 6 vans and 6 buses 14) 4 ducks and 2 buffalo
15) 7 cars and 8 vans 16) 4 pens and 4 pencils

More Systems Story Problems! (Hooray!)
Real- Life applications

Write the system of equations for every problem. Solve # 2, 5, 6, 7, 8, 10, 11 & 15

1. The Lakers scored a total of 80 points in a basketball game against the Bulls. The Lakers made a total of 37 two-point and three-point baskets. How many two point shots did the Lakers make? How many three point shots did the Lakers make?

2. Sophie and Caroline go to Taco Bell for lunch. Sophie orders 3 soft tacos and 3 burritos and her total bill was \$11.25. Caroline's bill is \$10.00 for 4 tacos and 2 burritos. How much do the soft tacos and burritos cost each?

3. All of the 8th grade teachers and students from Monarch Middle School went on a field trip to an art museum. Tickets were \$5.50 each for teachers and \$2.50 each for students and the group paid \$47.00 in total. The next month, the same group visited a science museum where the tickets cost \$16.50 for each teacher and \$10.00 for each student. That visit totaled \$166.00. Find the number of teachers and students in the group.

4. At Kohrman's Printing Company LLC there are two kinds of printing machines: Model A can print 70 books per day and Model B can print 55 books per day. The company owns 14 printing machines altogether and can print 905 books per day. How many of each type of machine does the company own?

5. Gabe and Daniel decide to spend the afternoon at an amusement park enjoying their favorite activities, the water slide and the Ferris wheel. Their tickets are stamped each time they slide or ride. At the end of the afternoon they have the following tickets. How much does it cost to ride the Ferris wheel? How much does it cost to slide on the water slide?

	Gabe's Tickets	Daniel's Tickets
Water Slide	3	2
Ferris Wheel	3	3
	\$17.70	\$15.55

6. The school that Mae goes to is selling tickets to a talent show. On the first day of ticket sales the school sold 6 adult tickets and 5 child tickets for \$64. The school took in \$144 on the second day selling 12 adult tickets and 12 child tickets. What is the price of each type of ticket?

7. Ozi and Zora are selling pies for a school fundraiser. Ozi sold 12 blueberry pies and 2 lemon meringue pies for a total of \$160. Zora sold 12 lemon meringue and 11 blueberry pies for a total of \$350. What is the cost of each type of pie?

8. On Saturday, Lucas earned \$51 for mowing three lawns and weeding three gardens. On Sunday, he earned \$25 for mowing one lawn and weeding 3 gardens. How much does he earn for each lawn he mows and each garden he weeds?

9. Charlie has one less than twice the number of DVD's Will has. Together they have 65 DVD's. How many DVD's do they each have?

10. Sydney weighs 8 pounds more than Jasmine does. Together they weigh 212 pounds. Find the weight of each girl.

11. A concession stand sells hot dogs for \$2 and hamburgers for \$3. One day 486 sandwiches were sold for a total of \$1,218. How many hot dog and hamburgers were sold?

12. Two small pitchers and one large pitcher can hold 8 cups of water. One large pitcher minus one small pitcher constitutes 2 cups of water. How many cups can each pitcher hold?

13. A test has twenty questions worth 100 points. The test consists of True/False questions worth 3 points each and essay questions worth 11 points each. How many essay questions are on the test?

14. A garden with a perimeter of 75 meters is to be 1.5 times as long as it is wide. What will be the dimensions of the garden? (hint: draw a picture)

15. A cell phone company offers two plans to customers. The monthly charges are below.
BASIC Plan: \$20 service fee plus \$0.30 per minute
FREQUENT CALLER Plan: \$45 service fee plus \$0.20 per minute

a. Solve a system of equations to find the number of minutes of phone use that would cost the same under each plan.

b. If you estimate that you will use your cell phone to make calls for 100 minutes each month, which plan is better? Explain your reasoning.

5.4 Homework Special Cases

Without graphing, determine whether the system of linear equations has *one solution*, *infinitely many solutions*, or *no solution*. Explain your reasoning.

$$y = 5x - 9$$

$$y = 6x + 2$$

$$y = 8x - 2$$

$$y = 5x + 9$$

$$y = 3x + 1$$

$$y - 8x = -2$$

Solve each system by elimination.

$$\begin{aligned} 1) \quad & -6x + y = -11 \\ & -12x - 5y = -29 \end{aligned}$$

$$\begin{aligned} 2) \quad & 9x - 10y = 27 \\ & 3x - 5y = 24 \end{aligned}$$

$$\begin{aligned} 3) \quad & 4x = 4y - 6 \\ & 32 + 16x = 16y \end{aligned}$$

$$\begin{aligned} 4) \quad & 3y + 3 = -3x \\ & 6 + 6y = -6x \end{aligned}$$

$$\begin{aligned} 5) \quad & 10y = 10x \\ & -40y + 40x = 0 \end{aligned}$$

$$\begin{aligned} 6) \quad & -6x + 4y = 10 \\ & -x + 3y = 25 \end{aligned}$$

$$\begin{aligned} 7) \quad & 7x + y = 12 \\ & 14x + 2y = 16 \end{aligned}$$

$$\begin{aligned} 8) \quad & -14x - 14y = 0 \\ & 7x + 7y = 0 \end{aligned}$$

$$\begin{aligned} 9) \quad & -20x + 2y = 27 \\ & -10x + y = 13 \end{aligned}$$

$$\begin{aligned} 10) \quad & -9x + 9y = -27 \\ & -18x + 8y = 6 \end{aligned}$$

$$\begin{aligned} 11) \quad & -7x + 9y = 0 \\ & -14x + 18y = -16 \end{aligned}$$

$$\begin{aligned} 12) \quad & 4x + y = 22 \\ & 8x - 3y = 14 \end{aligned}$$

Answers to Assignment (ID: 1)

- 1) $(2, 1)$ 2) $(-7, -9)$ 3) No solution
4) Infinite number of solutions 5) Infinite number of solutions 6) $(5, 10)$
7) No solution 8) Infinite number of solutions 9) No solution
10) $(-3, -6)$ 11) No solution 12) $(4, 6)$