SECTION 5.2 - SOLVING LINEAR SYSTEMS (ELIMINATION)

Use elimination to solve each system of equations.

1. $x - y = 1$
$x + y = 3$

2. $-x + y = 1$
$x + y = 11$

3. $x + 4y = 11$
$x - 6y = 11$

4. $-x + 3y = 6$
$x + 3y = 18$

5. $3x + 4y = 19$
$3x + 6y = 33$

6. $x + 4y = -8$
$x - 4y = -8$

7. $3x + 4y = 2$
$4x - 4y = 12$

8. $3x - y = -1$
$-3x - y = 5$

9. $2x - 3y = 9$
$-5x - 3y = 30$

10. $x - y = 4$
$2x + y = -4$

11. $3x - y = 26$
$-2x - y = -24$

12. $5x - y = -6$
$-x + y = 2$

13. $6x - 2y = 32$
$4x - 2y = 18$

14. $3x + 2y = -19$
$-3x - 5y = 25$

15. $7x + 4y = 2$
$7x + 2y = 8$

16. $2x - 5y = -28$
$4x + 5y = 4$

17. The sum of two numbers is 28 and their difference is 4. What are the numbers?

18. Find the two numbers whose sum is 29 and whose difference is 15.

Use elimination to solve each system of equations.

1. $x + y = -9$
$5x - 2y = 32$

2. $3x + 2y = -9$
$x - y = -13$

3. $2x + 5y = 3$
$-x + 3y = -7$

4. $2x + y = 3$
$-4x - 4y = -8$

5. $4x - 2y = -14$
$3x - y = -8$

6. $2x + y = 0$
$5x + 3y = 2$

7. $5x + 3y = -10$
$3x + 5y = -6$

8. $2x + 3y = 14$
$3x - 4y = 4$

9. $2x - 3y = 21$
$5x - 2y = 25$

10. $3x + 2y = -26$
$4x - 5y = -4$

11. $3x - 6y = -3$
$2x + 4y = 30$

12. $5x + 2y = -3$
$3x + 3y = 9$

13. Two times a number plus three times another number equals 13. The sum of the two numbers is 7. What are the numbers?

14. Four times a number minus twice another number is -16. The sum of the two numbers is -1. Find the numbers.

15. FUNDRAISING Trisha and Byron are washing and vacuuming cars to raise money for a class trip. Trisha raised $38 washing 5 cars and vacuuming 4 cars. Byron raised $28 by washing 4 cars and vacuuming 2 cars. Find the amount they charged to wash a car and vacuum a car.

Elimination Using Addition and Subtraction

Use elimination to solve each system of equations.

1. $x - y = 1$
$x + y = -9$

2. $p + q = -2$
$p - q = 8$

3. $4x + y = 23$
$3x - y = 12$

4. $2x + 5y = -3$
$2x + 2y = 6$

5. $3x + 2y = -1$
$4x + 2y = -6$

6. $5x + 3y = 22$
$5x - 2y = 2$

7. $5x + 2y = 7$
$-2x + 2y = -14$

8. $3x - 9y = -12$
$3x - 15y = -6$

9. $-4c - 2d = -2$
$2c - 2d = -14$

10. $2x - 6y = 6$
$2x + 3y = 24$

11. $7x + 2y = 2$
$7x - 2y = -30$

12. $4.25x - 1.28y = -9.2$
$x + 1.28y = 17.6$

13. $2x + 4y = 10$
$x - 4y = -2.5$

14. $2.5x + y = 10.7$
$2.5x + 2y = 12.9$

15. $6m - 8n = 3$
$2m - 8n = -3$

16. $4a + b = 2$
$4a + 3b = 10$

17. $-\frac{1}{3}x - \frac{4}{3}y = -2$
$\frac{1}{3}x - \frac{2}{3}y = 4$

18. $\frac{3}{4}x - \frac{1}{2}y = 8$
$\frac{3}{2}x + \frac{1}{2}y = 19$

19. The sum of two numbers is 41 and their difference is 5. What are the numbers?

20. Four times one number added to another number is 36. Three times the first number minus the other number is 20. Find the numbers.

21. One number added to three times another number is 24. Five times the first number added to three times the other number is 36. Find the numbers.

22. LANGUAGES English is spoken as the first or primary language in 78 more countries than Farsi is spoken as the first language. Together, English and Farsi are spoken as a first language in 130 countries. In how many countries is English spoken as the first language? In how many countries is Farsi spoken as the first language?

23. DISCOUNTS At a sale on winter clothing, Cody bought two pairs of gloves and four hats for $43.00. Tori bought two pairs of gloves and two hats for $30.00. What were the prices for the gloves and hats?

Elimination Using Multiplication

Use elimination to solve each system of equations.

1. $2x - y = -1$
$3x - 2y = 1$

2. $5x - 2y = -10$
$3x + 6y = 66$

3. $7x + 4y = -4$
$5x + 8y = 28$

4. $2x - 4y = -22$
$3x + 3y = 30$

5. $3x + 2y = -9$
$5x - 3y = 4$

6. $4x - 2y = 32$
$-3x - 5y = -11$

7. $3x + 4y = 27$
$5x - 3y = 16$

8. $0.5x + 0.5y = -2$
$x - 0.25y = 6$

9. $2x - \frac{3}{4}y = -7$
$x + \frac{1}{2}y = 0$

10. $6x - 3y = 21$
$2x + 2y = 22$

11. $3x + 2y = 11$
$2x + 6y = -2$

12. $-3x + 2y = -15$
$2x - 4y = 26$

13. Eight times a number plus five times another number is -13. The sum of the two numbers is 1. What are the numbers?

14. Two times a number plus three times another number equals 4. Three times the first number plus four times the other number is 7. Find the numbers.

15. FINANCE Gunther invested \$10,000 in two mutual funds. One of the funds rose 6% in one year, and the other rose 9% in one year. If Gunther's investment rose a total of \$684 in one year, how much did he invest in each mutual fund?

16. CANOEING Laura and Brent paddled a canoe 6 miles upstream in four hours. The return trip took three hours. Find the rate at which Laura and Brent paddled the canoe in still water.

17. NUMBER THEORY The sum of the digits of a two-digit number is 11. If the digits are reversed, the new number is 45 more than the original number. Find the number.