Define the two variables with units, write the two linear equations, solve by elimination or comparison, and then answer the question.

1. The sum of two numbers is 25 and their difference is 7. Find the numbers.

2. One number is 4 less than eleven times another. The sum of the two numbers is 92. Find the numbers.

3. Cory has $24 more than twice as much as Stan. Together they have $150. How much money does each have?

4. Marcia has $84 less than three times as much as Sue. Together they have $132. How much money does Marcia have?

5. The length of a rectangle is 5 more than twice the width. The perimeter is 130. What is the area?

6. A rectangle is five times as long as it is wide. If it were 24 cm shorter and 24 cm wider, it would be a square. What are its dimensions?

7. Phil has 50 nickels and dimes worth $4.15. How many dimes does he have?

8. Sally has $21.40 in dimes and quarters, for a total of 100 coins. How many of each kind of coin does Sally have?

9. The bill for five glasses of apple juice and four salads is $9.50, but the bill for four glasses of apple juice and five salads is $10.30. What would be the bill for a glass of juice and a salad?

10. Three pens and two notebooks cost $8.25. Two pens and three notebooks cost $8.00. How much would two pens and two notebooks cost?

11. A movie theater charges $5 for an adult’s ticket and $2 for a child’s ticket. One Saturday the theater sold 785 tickets for $3280. How many children’s tickets were sold that Saturday?

12. Six grapefruit cost as much as a dozen oranges. The cost of a dozen grapefruit and two dozen oranges is $12. How much does each can cost?

13. Ted’s bill for 6 cans of grape juice and 4 cans of orange juice was $13.20. When he got home, he found that he should have bought 4 cans of grape and 6 cans of orange juice. Although he mixed up the order, Ted did save 60 cents. How much does each can cost?

14. Joe Tyson is the place kicker for his college football team. Last season he kicked 38 times and never missed. Each field goal scored 3 points and each point after touchdown scored 1 point for a total of 70 points. How many field goals did Joe kick last season?

15. A store received $823 from the sale of 5 tape decks and 7 radios. The receipts from the tape decks exceeded the receipts from the radios by $137. What is the cost of a radio?
16. Rebecca has 45 coins, all nickels and dimes. The total value of the coins is $3.60. How many of each type of coin does Rebecca have?

17. Before last weekend’s hiking trip Juanita mixed 3 kg of peanuts and raisins as an energy snack. The peanuts cost $4.25/kg and the raisins cost $3.50/kg. The whole mix cost $12. How many kgs of peanuts did Juanita have?

18. A grocer prepares a mixture of 30 lb of dried fruit to sell for $4.10 per pound. For the mixture he uses two types of dried fruit, one selling at $4.30 per pound, the other at $3.90 per pound. How much of each type should he use for the mixture?

19. A car traveled at a steady speed for 120 km. Due to a mechanical problem, it returned at half that speed. If the total time for the round trip was 4 h 30 mm, find the two speeds.

20. Larry can paint the walls of his apartment in 8 h. After he has worked for 3h, Patrick joins him, and together they finish the job in 2 h. How long would it take Patrick to do the entire painting job without Larry.

21. Todd has 48 words to spell for a puzzle. As an incentive his mother offers to pay him 10 cents for each word he spells correctly if Todd will pay her 6 cents for each word he spells incorrectly. If Todd makes $1.92 how many words does he spell correctly?

22. Elsa works at the China Emporium on Saturdays packing dishes for shipping. She receives 12 cents for each piece she packs successfully and is fined 18 cents for each piece she breaks. If she handles 188 pieces and is paid $20.16, how many pieces does she break?

23. On a simple pan balance, 3 apples and 1 banana exactly balance 10 plums. Also, 1 apple and 6 plums balance 1 banana. How many plums will balance one banana?

24. Roger, Sue, and Tim have $155 among them. Roger has $5 more than Sue and Tim together. If Sue gives Tim $5, he will have twice as much as she does. How much does each have?

25. If the length of a rectangle is increased by 12 and the width is decreased by 8, the area is unchanged. The area is also unchanged if the original length is increased by 5 and the original width is decreased by 4. Find the original dimensions of the rectangle.

26. If Alexandra increases her usual driving speed by 15 km/h, it will take her 2 h less to make a trip to her grandparents' house. If she decreases her usual speed by 15 km/h, it will take her 3 h more than usual to make the trip. How long is the trip?

27. The students in secondary five are planning a ski trip to Mont St. Anne, where they will be staying in condominiums. The small condominiums that they are staying in can hold 4 students and cost $160 each. The large ones can hold 6 students and cost $200 each. The organizer has booked enough rooms for 84 students for a total cost of $3200. How many of each size room was booked?

28. The perimeter of a rectangle is 160 cm. The length is 4 less than three times the width. Find the length and the width.
29. Two angles are supplementary. One angle is 60° more than twice the other. Find the angles.

30. Two angles are complementary. Their difference is 36°. Find the angles.

31. Find two numbers whose sum is 49 and whose difference is 13.

32. Auto-Bought Rental rents a basic car at a daily rate of $29.95 plus 15¢ per mile. Another company rents a basic car for $24.95 plus 20¢ per mile. For what mileage is the cost the same?

33. There were 239 people at a concert. Admission was $15 each for adults and $5.50 each for children. The receipts were $2758.50. How many adults and how many children attended?

34. The Calhouns generate one and a half times as much trash as their neighbors, the Millers. Together, the two households produce 15 bags of trash each month. How much does each household produce?

35. The Candy Shack has 20 lb of mixed white and dark chocolates worth $7.50 per pound. White chocolates alone sell for $8.00 per pound and dark chocolates sell for $6.00 per pound. How many pounds of each are in the mixture?

36. A collection of quarters and nickels is worth $3.70. There are 22 coins in all. How many of each are there?

Answers to the odd numbers:
1. 16 and 9  3. Stan: $42; Cory: $108  5. 900 sq. units  7. 33  9. $2.20  11. 215 tickets  13. grape: $120. orange: $1.50  15. $49  17. 2 kg  19. 80 km/h, 40 km/h  21. 30 words  23. 7 plums  25. 28 by 30  27. 15 small, 4 large