

Concept 3: Clearing Fractions and Decimals

For Exercises 45–56, solve the equations. (See Examples 7–9.)

45. $\frac{2}{3}x - \frac{1}{6} = -\frac{5}{12}x + \frac{3}{2} - \frac{1}{6}x$ 46. $-\frac{1}{2}y + 4 = -\frac{9}{10}y + \frac{2}{5}$ 47. $\frac{1}{5}(p - 5) = \frac{3}{5}p + \frac{1}{10}p + 1$
48. $\frac{5}{6}(q + 2) = -\frac{7}{9}q - \frac{1}{3} + 2$ 49. $\frac{3x - 7}{2} + \frac{3 - 5x}{3} = \frac{3 - 6x}{5}$ 50. $\frac{2y - 4}{5} = \frac{5y + 13}{4} + \frac{y}{2}$
51. $\frac{4}{3}(2q + 6) - \frac{5q - 6}{6} - \frac{q}{3} = 0$ 52. $\frac{-3a + 9}{15} - \frac{2a - 5}{5} - \frac{a + 2}{10} = 0$ 53. $6.3w - 1.5 = 4.8$
54. $0.2x + 53.6 = x$ 55. $0.75(m - 2) + 0.25m = 0.5$ 56. $0.4(n + 10) + 0.6n = 2$

Concept 4: Conditional Equations, Contradictions, and Identities

57. What is a conditional equation?

58. Explain the difference between a contradiction and an identity.

For Exercises 59–64, identify the equation as a conditional equation, a contradiction, or an identity. Then give the solution set. (See Example 10.)

59. $4x + 1 = 2(2x + 1) - 1$ 60. $3x + 6 = 3x$ 61. $-11x + 4(x - 3) = -2x - 12$
62. $5(x + 2) - 7 = 3$ 63. $2x - 4 + 8x = 7x - 8 + 3x$ 64. $-7x + 8 + 4x = -3(x - 3) - 1$

Section 1.2 Practice Exercises

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Study Skills Exercises

1. After doing a section of homework, check the odd-numbered answers in the back of the text. Choose a method to identify the exercises that gave you trouble (i.e., circle the number or put a star by the number). List some reasons why it is important to label these problems.
2. Define the key terms.

a. Sum	b. Difference	c. Product	d. Quotient
e. Sales tax	f. Commission	g. Simple interest	

Review Exercises

For Exercises 3–8, solve the equations.

3. $7a - 2 = 11$

4. $2z + 6 = -15$

5. $4(x - 3) + 7 = 19$

6. $-3(y - 5) + 4 = 1$

7. $\frac{3}{8}p + \frac{3}{4} = p - \frac{3}{2}$

8. $\frac{1}{4} - 2x = 5$

For the remaining exercises, follow the steps outlined in the Problem-Solving Flowchart found on page 57.

Concept 1: Introduction to Problem Solving

9. If x represents a number, write an expression for 5 more than the number.
10. If n represents a number, write an expression for 10 less than the number.
11. If t represents a number, write an expression for 7 less than twice the number.
12. If y represents a number, write an expression for 4 more than 3 times the number.
13. The larger of two numbers is 3 more than twice the smaller. The difference of the larger number and the smaller number is 8. Find the numbers. (See Example 1.)
14. One number is 3 less than another. Their sum is 15. Find the numbers.
15. The sum of 3 times a number and 2 is the same as the difference of the number and 4. Find the number.
16. Twice the sum of a number and 3 is the same as 1 subtracted from the number. Find the number.
17. The sum of two integers is 30. Ten times one integer is 5 times the other integer. Find the integers. (Hint: If one number is x , then the other number is $30 - x$.)
18. The sum of two integers is 10. Three times one integer is 3 less than 8 times the other integer. Find the integers. (Hint: If one number is x , then the other number is $10 - x$.)

Concept 2: Applications Involving Consecutive Integers

19. The sum of two consecutive page numbers in a book is 223. Find the page numbers. (See Example 2.)
20. The sum of the numbers on two consecutive raffle tickets is 808,455. Find the numbers on the tickets.

21. The sum of two consecutive odd integers is -148 . Find the two integers.
22. The sum of three consecutive integers is -57 . Find the integers.
23. Three times the smaller of two consecutive even integers is the same as -146 minus 4 times the larger integer. Find the integers.
24. Four times the smaller of two consecutive odd integers is the same as 73 less than 5 times the larger. Find the integers.
25. Two times the sum of three consecutive odd integers is the same as 23 more than 5 times the largest integer. Find the integers.
26. Five times the smallest of three consecutive even integers is 10 more than twice the largest. Find the integers.

Concept 3: Applications Involving Percents and Rates

27. Belle had the choice of taking out a 4-yr car loan at 8.5% simple interest or a 5-yr car loan at 7.75% simple interest. If she borrows \$15,000, how much interest would she pay for each loan? Which option will require less interest? (See Example 3.)
28. Robert can take out a 3-yr loan at 8% simple interest or a 2-yr loan at $8\frac{1}{2}\%$ simple interest. If he borrows \$7000, how much interest will he pay for each loan? Which option will require less interest?
29. An account executive earns \$600 per month plus a 3% commission on sales. The executive's goal is to earn \$2400 this month. How much must she sell to achieve this goal?
30. A salesperson earns \$50 a day plus 12% commission on sales over \$200. If her daily earnings are \$76.88, how much money in merchandise did she sell?
31. J. W. is an artist and sells his pottery each year at a local Renaissance Festival. He keeps track of his sales and the 8.05% sales tax he collects by making notations in a ledger. Every evening he checks his records by counting the total money in his cash drawer. After a day of selling pottery, the cash totaled \$1293.38. How much is from the sale of merchandise and how much is sales tax?
32. Wayne County has a sales tax rate of 7%. How much does Mike's used Honda Civic cost before tax if the total cost of the car *plus tax* is \$13,888.60?
33. The price of a swimsuit after a 20% markup is \$43.08. What was the price before the markup? (See Example 4.)
34. The price of a used textbook after a 35% markdown is \$29.25. What was the original price?
35. For a recent year, 1800 medical degrees were awarded to women. This represents a 5.5% increase over the number awarded the previous year. How many women were awarded a medical degree the previous year?
36. For a recent year, Americans spent approximately \$69 billion on weddings. This represents a 50% increase from the amount spent in 2001. What amount did Americans spend on weddings in 2001?

