

Practice 3-6

Systems with Three Variables

Solve each system.

$$1. \begin{cases} x + y + z = -1 \\ 2x - y + 2z = -5 \\ -x + 2y - z = 4 \end{cases}$$

$$2. \begin{cases} x + y + z = 3 \\ 2x - y + 2z = 6 \\ 3x + 2y - z = 13 \end{cases}$$

$$3. \begin{cases} 2x + y = 9 \\ x - 2z = -3 \\ 2y + 3z = 15 \end{cases}$$

$$4. \begin{cases} x - y + 2z = 10 \\ -x + y - 2z = 5 \\ 3x - 3y + 6z = -2 \end{cases}$$

$$5. \begin{cases} 2x - y + z = -4 \\ 3x + y - 2z = 0 \\ 3x - y = -4 \end{cases}$$

$$6. \begin{cases} 2x - y - z = 4 \\ -x + 2y + z = 1 \\ 3x + y + z = 16 \end{cases}$$

$$7. \begin{cases} x + 5y + 5z = -10 \\ x + y + z = 2 \\ x + 2y + 3z = -3 \end{cases}$$

$$8. \begin{cases} x - y - z = 0 \\ x - 2y - 2z = 3 \\ -2x + 2y - z = 3 \end{cases}$$

$$9. \begin{cases} 3x + y + z = 6 \\ 3x - 2y + 2z = 14 \\ 3x + 3y - 3z = -6 \end{cases}$$

$$10. \begin{cases} x + y + z = -2 \\ 2x + 2y - 3z = 11 \\ 3x - y + z = 4 \end{cases}$$

$$11. \begin{cases} x - 5y + z = 3 \\ x + 2y - 2z = -12 \\ 2x + 2z = 6 \end{cases}$$

$$12. \begin{cases} 2x + 3z = 2 \\ 3x + 6y = 6 \\ x - 2z = 8 \end{cases}$$

$$13. \begin{cases} x + y - z = 0 \\ 3x - y + z = 4 \\ 5x + z = 7 \end{cases}$$

$$14. \begin{cases} x - 2y = 1 \\ x + 3y + z = 0 \\ 2x - 2z = 18 \end{cases}$$

$$15. \begin{cases} x + y + 4z = 5 \\ -2x + 2z = 3 \\ 3x + y - 2z = 0 \end{cases}$$

$$16. \begin{cases} 3x + 2y + 2z = 4 \\ -6x + 4y - 2z = -9 \\ 9x - 2y + 2z = 10 \end{cases}$$

$$17. \begin{cases} 2x - 3y + z = -3 \\ x - 5y + 7z = -11 \\ -10x + 4y - 6z = 28 \end{cases}$$

$$18. \begin{cases} x + y + z = -8 \\ x - y - z = 6 \\ 2x - 3y + 2z = -1 \end{cases}$$

$$19. \begin{cases} 14x - 3y + 5z = -15 \\ 3x + 2y - 6z = 10 \\ 7x - y + 4z = -5 \end{cases}$$

$$20. \begin{cases} 5x - 3y + 2z = 39 \\ 4x + 4y - 3z = 34 \\ 3x - 2y + 6z = 14 \end{cases}$$

$$21. \begin{cases} x + y + z = 6 \\ 2x - y + 2z = 6 \\ -x + y + 3z = 10 \end{cases}$$

$$22. \begin{cases} 2x + y - z = 3 \\ 3x - y + 3z = 3 \\ -x - 3y + 2z = 3 \end{cases}$$

$$23. \begin{cases} 2x - 3y + z = 4 \\ -2x + 3y - z = -4 \\ 6x - 9y + 3z = 12 \end{cases}$$

$$24. \begin{cases} x + y - z = 1 \\ x + 2z = 3 \\ 2x + 2y = 4 \end{cases}$$

Write and solve a system of equations for each problem.

25. The sum of three numbers is -2 . The sum of three times the first number, twice the second number, and the third number is 9 . The difference between the second number and half the third number is 10 . Find the numbers.
26. Monica has \$1, \$5, and \$10 bills in her wallet that are worth \$96. If she had one more \$1 bill, she would have just as many \$1 bills as \$5 and \$10 bills combined. She has 23 bills total. How many of each denomination does she have?

What Kind of Monkey Can Fly?

Solve each problem below using a system of two equations in two variables. Find the solution in the answer column and notice the letter next to it. Write this letter in each box that contains the number of that exercise.

- 1 Three times the larger of two numbers is equal to four times the smaller. The sum of the numbers is 21. Find the numbers.
- 2 The difference between two numbers is 16. Five times the smaller is the same as 8 less than twice the larger. Find the numbers.
- 3 The larger of two numbers is 1 more than twice the smaller. The sum of the numbers is 20 less than three times the larger. Find the numbers.
- 4 Two records and three tapes cost \$31. Three records and two tapes cost \$29. Find the cost of each record and each tape.
- 5 The sum of two numbers is the same as four times the smaller number. If twice the larger is decreased by the smaller, the result is 30. Find the numbers.
- 6 A group of students go out for lunch. If two have hamburgers and five have hot dogs, the bill will be \$8.00. If five have hamburgers and two have hot dogs, the bill will be \$9.50. What is the price of a hamburger?
- 7 The price of a sweater is \$5 less than twice the price of a shirt. If four sweaters and three shirts cost \$200, find the price of each shirt and each sweater.
- 8 A shipment of TV sets, some weighing 30 kg each and the others weighing 50 kg each, has a total weight of 860 kg. If there are 20 TV sets all together, how many weigh 50 kg?

(S)	22, 6
(K)	16, 9
(R)	18, 6
(M)	11, 10
(B)	\$20, \$35
(I)	12, 9
(P)	\$1.35
(N)	13, 6
(O)	14
(T)	\$1.50
(L)	\$8, \$5
(A)	24, 8
(D)	\$23, \$41
(H)	\$5, \$7
(E)	17

2	4	8	6	2	1	5	7	2	7	8	8	3
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