

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?

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