**Chapter Test A**
For use after Chapter 3

Graph the linear system and tell how many solutions it has. If there is exactly one solution, estimate the solution and check it algebraically.

1. \(x + y = 4\) \(x - y = 2\)
2. \(y = 3x\)
3. \(y = \frac{1}{2}x + 2\) \(2y = 6x\) \(y = \frac{1}{2}x - 2\)

Solve the system using any algebraic method.

4. \(x + y = 2\) \(3x - 2y = 6\)
5. \(y = 3x\) \(x + y = 12\)
6. \(5x - 2y = 30\) \(x + 2y = 6\)

Graph the system of linear inequalities.

7. \(x > 3\) \(y \leq 2\)
8. \(y > x + 4\) \(x \leq 1\)
9. \(-x + y \leq 2\) \(x \geq 0\) \(y \geq 4\)

Find the minimum and maximum values of the objective function subject to the given constraints.

10. Objective function: \(C = x + y\)
    Constraints: \(x \geq 0\)
        \(y \geq 0\)
        \(y \leq -\frac{1}{2}x + 2\)

11. Objective function: \(C = 5x + 4y\)
    Constraints: \(x \leq -2\)
        \(x \geq -4\)
        \(y \geq 1\)
        \(y \leq 6\)

**Answers**

1. Use grid at left.
2. Use grid at left.
3. Use grid at left.
4. 
5. 
6. 
7. Use grid at left.
8. Use grid at left.
9. Use grid at left.
10. 
11. 

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Chapter 3 Resource Book

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Chapter Test A
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NAME ________________________________  DATE ____________

Plot the ordered triple in a three-dimensional coordinate system.

12. (1, 0, -1)  13. (-3, 4, 2)

12. Use graph at left.  13. Use graph at left.

Sketch the graph of the equation. Label the points where the graph crosses the x-, y-, and z-axes.

14. \( x + y + z = 6 \)  15. \( 2x + y - z = 4 \)

14. Use graph at left.  15. Use graph at left.

16. Write the linear equation \( x + y + z = 9 \) as a function of \( x \) and \( y \).
    Then evaluate the function when \( x = 3 \) and \( y = 5 \).

Solve the system using any algebraic method.

17. \( 2x - 3y + 2z = 3 \)  18. \( -x + 2y - 3z = -8 \)
    \( 2y - 3z = -6 \)  \( 2x + 3y + z = -3 \)
    \( z = 4 \)  \( -2x - y + 2z = 2 \)

17. \( \begin{cases} 2x - 3y + 2z = 3 \\ 2y - 3z = -6 \\ z = 4 \end{cases} \)
18. \( \begin{cases} -x + 2y - 3z = -8 \\ 2x + 3y + z = -3 \\ -2x - y + 2z = 2 \end{cases} \)

19. **Compact Discs**  At a music store, compact discs cost $14.95 each, but are now on sale for $12.95 each. If you bought ten compact discs in the past month, and spent a total of $139.50, how many did you buy on sale?

20. **Ages**  You are 4 years older than your brother. Two years ago, you were 1.5 times as old as he was. What is your present age?