9.3 Systems and Matrices

These problems taken from the Nelson Text: Pg. 552 – 553

3. Solve each system of equations.

    a. ① $x - y + 2z = 3$
       ② $2x - 2y + 3z = 1$
       ③ $2x - 2y + z = 11$

    b. ① $x + y + z = 300$
       ② $x + y - z = 98$
       ③ $x - y + z = 100$

7. Solve the following systems of equations:

    a. ① $3x - 4y + 5z = 9$
       ② $6x - 9y + 10z = 9$
       ③ $9x - 12y + 15z = 9$

    b. ① $2x + 3y + 4z = 3$
       ② $4x + 6y + 8z = 4$
       ③ $5x + y - z = 1$

8. Solve each system of equations.

    a. ① $3x + 4y + z = 4$
       ② $5x + 2y + 3z = 2$
       ③ $6x + 8y + 2z = 8$

9. Solve each of the following systems:

    a. ① $3x - 5y + 2z = 4$
       ② $6x + 2y - z = 2$
       ③ $6x - 3y + 8z = 6$

    b. ① $2x - 5y + 3z = 1$
       ② $4x + 2y + 5z = 5$
       ③ $2x + 7y + 2z = 4$

Answers on the opposite side

3. **a.** no solution

  b. $(99, 100, 101)$

7. **a.** no solution

  b. no solution

8. **a.** $x = -\dfrac{5}{7}t, y = 1 + \dfrac{2}{7}t, z = t, t \in \mathbf{R}$ (Note: your answer may be different here, depending on which variable you chose to be free)

9. **a.** $x = \dfrac{1}{2} + \dfrac{1}{36}t, y = -\dfrac{1}{2} + \dfrac{5}{12}t,$

  $z = t, t \in \mathbf{R}$

  b. $x = \dfrac{9}{8} - \dfrac{31}{24}t, y = \dfrac{1}{4} + \dfrac{1}{12}t, z = t,$

  $t \in \mathbf{R}$