Systems of Equations

1. **Solve the following systems using the comparison method.**

    a) $y = 3x - 5$
        $y = 5x - 8$

    b) $y = -4x + 5$
        $y = x + 10$

    c) $y = 1.5x + 5$
        $y = \dfrac{2}{3}x + 1$

    d) $y = 0.4x + 3.25$
        $y = 1.2x - 5.5$

    e) $y = 6x - 9$
        $y = 4x - 7$

    f) $y = -3x + 5$
        $y = -3 + 5x$

2. **Solve the following systems using the substitution method.**

    a) $x = 5 - 3y$
        $7x + 6y = 20$

    b) $2x + 3y = 25$
        $y = -5x + 30$

    c) $y = 2x - 3$
        $3x + y + 8 = 0$

    d) $x - 2y + 5 = 0$
        $x = 3y - 6$

    e) $5y - 3x = 4$
        $y = x - 2$

    f) $y = \dfrac{5}{3}x + 4$
        $2x - 3y - 6 = 0$

    g) $3x - 2y - 4 = 0$
        $x = 2y + 7$

    h) $y = 1 - 3x$
        $2x + 3y = 10$

    i) $-5x + y = -3$
        $3x - 8y = 24$

3. **Solve each system using the comparison method.**

    a) $-3x + 2y = 5$
        $4x - y = 10$

    b) $3x - 4y = 1$
        $6x + 3y = 13$

    c) $5x + 2y = 2$
        $3x - 4y = -56$

    d) $x - 2y = -4$
        $x + y = -7$

4. **For each of the following problems,**

    i)   **Determine the unknowns**

    ii)   **Determine the system of equations**

    iii)   **Solve the system to answer the question.**

a)   The width of a rectangle is three times its length. Its perimeter is $98cm$. **What are the dimensions of this rectangle**?

b)   A livestock farmer has 225 animals divided between chickens and sheep. If there are a total of 774 legs, then **how many of each type of animal are there**?

c)   Three hundred people are watching a hockey game. The number of men in the audience is three times the number of women. **How many men and how many women are watching the game**?