10.1 Recitation Exercises

1. Solve the following systems:

a) $\begin{cases} x - y = 4 \\ 2x + y = 2 \end{cases}$

b) $\begin{cases} -\dfrac{1}{3}x - \dfrac{1}{12}y = -1 \\ \dfrac{2}{3}x + \dfrac{1}{6}y = 3 \end{cases}$

c) $\begin{cases} -\dfrac{1}{10}x + \dfrac{1}{2}y = 4 \\ 2x - 10y = -80 \end{cases}$

2. If the following system is dependent, find the value of $a + b$

$$\begin{cases} \dfrac{3}{2}x - \dfrac{1}{3}y = \dfrac{b}{7} \\ \dfrac{a}{4}x - y = 2 \end{cases}$$

3. If the system of linear equations $\begin{cases} -4x + 4y + 3 = 0 \\ 2x - ky + 2 + k = 0 \end{cases}$ is inconsistent, then

k =

A) 2 **B)** 3 **C)** 4 **D)** 5 **E)** 6

4. The sum of two numbers is twice their difference. The larger number is 6 more than twice the smaller. Find the numbers.

10.4 Recitation Exercises

1. The following system of non-linear equations $\begin{cases} 5x^2 + 3y^2 = 23 \\ x^2 - y^2 \ = 3 \end{cases}$ has:

    A) No solutions.

    B) One solution.

    C) Two solutions.

    D) Three solutions.

    E) Four solutions.

2. Solve the following system $\begin{cases} 2x^2 + xy + y^2 \ = 4 \\ 3x^2 + 2xy + \ y^2 \ = 4 \end{cases}$.

3. Find the point(s) of intersection of the circle $(x - 1)^2 + (y - 2)^2 = 8$ and the line $y = 2x + 2$.

4. Find the solution set of the system $\begin{cases} \dfrac{2}{x} - \dfrac{3}{y} = 1 \\ \dfrac{7}{y} - \dfrac{4}{x} = 1 \end{cases}$.

5. Solve the following system $\begin{cases} x + \sqrt{y} = 0 \\ y^2 - 4x^2 = 12 \end{cases}$.