2 Exercise

- The following exercises from the section Exercise 2.2 on page 85.
  9, 25,26, 27, 39, 19
- The exercise 41 from the section Exercise 2.1 on page 70.

  Solution. For $x, y \neq 0$ let $u = \frac{1}{x}$ and $v = \frac{1}{y}$. Then the given system of equations is changed to the system $\begin{cases} 2u + 3v = 0 \\ 3u + 4v = 1 \end{cases}$ for all $u, v \in \mathbb{R}$. This system of linear equations has the solution $u = 3, v = -2$.

$$\therefore x = \frac{1}{3}, y = -\frac{1}{2}$$

□

- **Binary Vectors and Modular Arithmetic** p.13
  - modified rules for addition and scalar multiplication for $\{0, 1\}$
  - integers modulo 2 - $\mathbb{Z}_2$
  - binary vector of length n - $\mathbb{Z}_2^n$
  - integers modulo 3 - $\mathbb{Z}_3$
  - $3548 = 2 (\text{mod } 3)$
  - m-ary vectors of length n

2 Homework

(a) The following exercises from the section Exercise 1.1 on page 16.
31–36, 44, 45, 49, 56 (a),(b), 57 (a),(b).

(b) The following exercises from the section Exercise 2.1 on page 69.
8, 9, 15, 25, 39, 42–44.

(c) The following exercises from the section Exercise 2.2 on page 85.
1–8, 12, 13, 17, 20, 21, 23, 24, 31–33, 35–38, 41, 42, 44, 54–56, 60.