

1. Решите следующие системы:

$$\begin{aligned} \text{а)} \left\{ \begin{array}{l} x(y+1) = 16 \\ \frac{x}{y+1} = 4 \end{array} \right. ; \quad \text{б)} \left\{ \begin{array}{l} x+y = 4 \\ x^2+y^2 = 8 \end{array} \right. ; \quad \text{в)} \left\{ \begin{array}{l} x^2+y^2 = 13 \\ y = x^2-7 \end{array} \right. ; \quad \text{г)} \left\{ \begin{array}{l} x-y = 3 \\ x^3-y^3 = 9 \end{array} \right. ; \\ \text{д)} \left\{ \begin{array}{l} x^2+y^2 = 5 \\ x^4-y^4 = 15 \end{array} \right. ; \quad \text{е)} \left\{ \begin{array}{l} x+y = 3a \\ xy = 2a^2 \end{array} \right. ; \quad \text{ж)} \left\{ \begin{array}{l} xy = 2a^2 \\ x^2+y^2 = 5a^2 \end{array} \right. ; \quad \text{з)} \left\{ \begin{array}{l} \frac{1}{x} - \frac{1}{y} = \frac{2}{a} \\ xy = -a^2 \end{array} \right. \end{aligned}$$

2. Решите системы уравнений:

$$\begin{aligned} \text{а)} \left\{ \begin{array}{l} x^2+3y = 1 \\ x^4+4y = 12 \end{array} \right. ; \quad \text{б)} \left\{ \begin{array}{l} x^2-x+1 = y \\ y^2-y+1 = x \end{array} \right. ; \quad \text{в)} \left\{ \begin{array}{l} x+y = 5xy \\ x-y = xy \end{array} \right. ; \\ \text{г)} \left\{ \begin{array}{l} x^2-6y = -14 \\ y^2-4x = 1 \end{array} \right. ; \quad \text{д)} \left\{ \begin{array}{l} 12x^2+2y^2-6x+5y = 3 \\ 18x^2+3y^2-6x+8y = 7 \end{array} \right. ; \quad \text{е)} \left\{ \begin{array}{l} 9x^2+6xy-4x-9y+2 = 0 \\ 27x^2+3xy-2x-42y+16 = 0 \end{array} \right. ; \\ \text{ж)} \left\{ \begin{array}{l} x^2+y^2+2xy-y+x = 0 \\ x^2+y^2+xy+y+2x = 2 \end{array} \right. ; \quad \text{з)} \left\{ \begin{array}{l} x^2+2y+1 = 0 \\ y^2+2x+1 = 0 \end{array} \right. ; \quad \text{и)} \left\{ \begin{array}{l} x^3+2x^2y+xy^2-x-y = 2 \\ y^3+2xy^2+x^2y+x+y = 6 \end{array} \right. \end{aligned}$$

3. Решите системы уравнений:

$$\text{а)} \left\{ \begin{array}{l} (x+y)xy = 6 \\ (x-y)xy = 2 \end{array} \right. ; \quad \text{б)} \left\{ \begin{array}{l} x+xy^3 = 9 \\ xy+xy^2 = 6 \end{array} \right. ; \quad \text{в)} \left\{ \begin{array}{l} xy-x = 2 \\ xy^3-xy^2 = 8 \end{array} \right. ; \quad \text{г)} \left\{ \begin{array}{l} 2x^4 = 3x^2y+20 \\ 3y^2 = 2x^2y-5 \end{array} \right. ;$$

4. Решите системы уравнений:

$$\begin{aligned} \text{а)} \left\{ \begin{array}{l} x+xy+y = 5 \\ x^2+xy+y^2 = 7 \end{array} \right. ; \quad \text{б)} \left\{ \begin{array}{l} x-xy+y = 1 \\ x^2+y^2+2y+2x = 11 \end{array} \right. ; \quad \text{в)} \left\{ \begin{array}{l} xy+2x+2y = 5 \\ x^2+y^2+3x+3y = 8 \end{array} \right. ; \\ \text{г)} \left\{ \begin{array}{l} x^4+y^4+x^2+y^2 = 92 \\ xy = 3 \end{array} \right. ; \quad \text{д)} \left\{ \begin{array}{l} x^8+y^8+x^4+y^4 = 274 \\ xy = 2 \end{array} \right. ; \quad \text{е)} \left\{ \begin{array}{l} |x|+|y| = 3 \\ x^2+y^2 = 5 \end{array} \right. ; \\ \text{ж)} \left\{ \begin{array}{l} xy-y+x = 7 \\ x^2y-xy^2 = 6 \end{array} \right. ; \quad \text{з)} \left\{ \begin{array}{l} (x+y+1)^2-x-y = 31 \\ xy = 6 \end{array} \right. ; \quad \text{и)} \left\{ \begin{array}{l} xy-\frac{x}{y} = 2 \\ xy-\frac{1}{x} = \frac{1}{2} \end{array} \right. \end{aligned}$$

5. Решите системы уравнений:

$$\begin{aligned} \text{а)} \left\{ \begin{array}{l} x^2-3xy+2y^2 = 0 \\ x^2+y^2 = 20 \end{array} \right. ; \quad \text{б)} \left\{ \begin{array}{l} x^2-5y^2 = -1 \\ 3xy+7y^2 = 1 \end{array} \right. ; \quad \text{в)} \left\{ \begin{array}{l} x^2+3xy = 4 \\ 4y^2+xy = 5 \end{array} \right. ; \\ \text{г)} \left\{ \begin{array}{l} x^2+3xy-3y^2 = 1 \\ 2x^2-xy+y^2 = 2 \end{array} \right. ; \quad \text{д)} \left\{ \begin{array}{l} x^2-3xy-4y^2 = 0 \\ x|y|-y|x| = 2 \end{array} \right. ; \quad \text{е)} \left\{ \begin{array}{l} x^2-2xy = 2x-3y \\ y^2-3xy = 4x-6y \end{array} \right. \end{aligned}$$

6. Решите системы уравнений:

$$\begin{aligned} \text{а)} \left\{ \begin{array}{l} \frac{5}{x^2+xy} + \frac{4}{y^2+xy} = \frac{13}{6} \\ \frac{x^2+xy}{x^2+xy} - \frac{y^2+xy}{y^2+xy} = 1 \end{array} \right. ; \quad \text{б)} \left\{ \begin{array}{l} \frac{x+2y}{x-y} + \frac{x-2y}{x+y} = 4 \\ x^2+xy+y^2 = 21 \end{array} \right. ; \\ \text{в)} \left\{ \begin{array}{l} \frac{y^2}{x^2-xy} + \frac{x^2}{y^2-xy} = 1 \\ x^3-y^3 = 2 \end{array} \right. ; \quad \text{г)} \left\{ \begin{array}{l} \frac{3}{2x-y} + \frac{2}{x+y} = \frac{4}{x} \\ x^2+2y^2 = 72 \end{array} \right. \end{aligned}$$

7. Решите системы уравнений:

$$\begin{aligned} \text{а)} \left\{ \begin{array}{l} x+y = 3 \\ y+z = -1 \\ xz = -3 \end{array} \right. ; \quad \text{б)} \left\{ \begin{array}{l} z-y = 3 \\ z-x = 4 \\ x^2+y^2+z^2 = 30 \end{array} \right. ; \quad \text{в)} \left\{ \begin{array}{l} x+y+2z = -6 \\ x+2y+z = -5 \\ x^2+y^2+z^2 = 6 \end{array} \right. ; \\ \text{г)} \left\{ \begin{array}{l} xy = 2 \\ yz = -6 \\ xz = -3 \end{array} \right. ; \quad \text{д)} \left\{ \begin{array}{l} xy+yz = 9 \\ yz+xz = 8 \\ xy+xz = 5 \end{array} \right. ; \quad \text{е)} \left\{ \begin{array}{l} x+y = 2 \\ xy+yz+xz = 5 \\ x^2+y^2+z^2 = 6 \end{array} \right. \end{aligned}$$

