

# Systems of nonlinear equations

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Name \_\_\_\_\_ ID: 1

Date \_\_\_\_\_

Solve each system of equations for x only.

$$\begin{aligned} 1) \quad & x^2 - y^2 - 8x + 10y - 18 = 0 \\ & 9x^2 + y^2 + 28x - 10y + 28 = 0 \end{aligned}$$

$$\begin{aligned} 2) \quad & 2x^2 + y^2 + 11x - 8y - 60 = 0 \\ & 2x^2 + y^2 + 33x - 8y - 148 = 0 \end{aligned}$$

$$\begin{aligned} 3) \quad & -2x^2 + 2y^2 - 3x + 16y + 9 = 0 \\ & 23x^2 - 2y^2 + 3x - 16y - 198 = 0 \end{aligned}$$

$$\begin{aligned} 4) \quad & x^2 - 12x + y - 6 = 0 \\ & 22x^2 + 30x + y + 15 = 0 \end{aligned}$$

$$\begin{aligned} 5) \quad & -x^2 + 6x + y - 4 = 0 \\ & 20x^2 - 120x + y - 4 = 0 \end{aligned}$$

$$\begin{aligned} 6) \quad & x^2 + y^2 - 8x - 4y - 16 = 0 \\ & x^2 + y^2 - 4y - 96 = 0 \end{aligned}$$

**Solve each system of equations.**

$$\begin{aligned} 7) \quad & 2x^2 + y^2 + 8x - 16y + 40 = 0 \\ & 2x^2 + y^2 - 7x - 16y - 50 = 0 \end{aligned}$$

$$\begin{aligned} 8) \quad & -3x^2 + 3y^2 + 30x + 37y + 35 = 0 \\ & 3x^2 + 19y^2 - 30x + 117y + 185 = 0 \end{aligned}$$

$$\begin{aligned} 9) \quad & 2y^2 - x + 32y + 119 = 0 \\ & x^2 - 2y^2 + 9x - 32y - 112 = 0 \end{aligned}$$

$$\begin{aligned} 10) \quad & -2x^2 + 4y^2 + 4x + 35y + 54 = 0 \\ & 2x^2 + 2y^2 - 4x + 25y + 42 = 0 \end{aligned}$$

$$\begin{aligned} 11) \quad & x^2 - 8x - 3y + 4 = 0 \\ & -x^2 + 3y^2 + 8x + 18y + 8 = 0 \end{aligned}$$

$$\begin{aligned} 12) \quad & x^2 + y^2 + 8x - y - 20 = 0 \\ & x^2 - 23y^2 + 8x + 47y - 44 = 0 \end{aligned}$$

## Answers to Systems of nonlinear equations (ID: 1)

1)  $\{-1\}$

5)  $\{6, 0\}$

8)  $(5, -5), (9, -2), (1, -2)$

10)  $(5, -8), (-3, -8), (2, -2), (0, -2)$

12)  $(2, 1), (-10, 1)$

2)  $\{4\}$

6)  $\{10\}$

9)  $(-7, -7), (-7, -9), (-1, -6), (-1, -10)$

3)  $\{-3, 3\}$

7)  $(-6, 8)$

11)  $(4, -4), (7, -1), (1, -1)$

4)  $\{-1\}$

