

Systems of Equations

Solve each system of equations.

1) $5x^2 + 3y^2 + x - 81y + 108 = 0$
 $x + y + 1 = 0$

2) $-y^2 + 2x - 7y + 6 = 0$
 $x - 3y + 3 = 0$

3) $-5x^2 + y^2 - 3x - 130y - 21 = 0$
 $x - 2y + 3 = 0$

4) $x^2 + y^2 + 11x + 2y + 20 = 0$
 $x - 2y - 4 = 0$

5) $x^2 + y^2 - 29 = 0$
 $x - y = 3$

6) $x^2 - 3y^2 - 78x - 2y - 152 = 0$
 $3x - y = 4$

7) $2x^2 + 2y^2 + 11x - 6y - 11 = 0$
 $x - 2y = -3$

8) $-2x^2 + 41x - 2y - 196 = 0$
 $x - 2y + 4 = 0$

9) $3y^2 - 3x + 3y - 6 = 0$
 $x - 3y + 3 = 0$

10) $12x^2 + 4y^2 + 29x - 2y + 11 = 0$
 $x - 2y - 1 = 0$

11) $-6y^2 - 2x - 6y - 8 = 0$
 $x + 3y = 4$

12) $x^2 + 2y^2 - 27x + y + 5 = 0$
 $x - y = 2$

13) $2y^2 - 5x + 3y - 2 = 0$
 $x + y = 2$

14) $6x^2 + y^2 - 3x - 4 = 0$
 $2x + y + 3 = 0$

15) $4x^2 - 3y^2 - 50x + 3y - 26 = 0$
 $-2x + y + 1 = 0$

16) $x^2 + 4y^2 - 4x + 44y + 51 = 0$
 $x + 2y = -3$

17) $6x^2 + 2y^2 + 60x - y + 53 = 0$
 $2x + y = 1$

18) $x^2 + y^2 + 3x - 7y + 8 = 0$
 $x + y = 0$

$$19) \begin{cases} 3y^2 - x + 31y + 86 = 0 \\ x + 2y = 4 \end{cases}$$

$$20) \begin{cases} x^2 + y^2 - 14y = 0 \\ x - y = 0 \end{cases}$$

State if the point given is a solution to the system of equations.

$$21) \begin{cases} x^2 + 10x + 25y + 150 = 0 \\ -x^2 + 8y^2 - 10x + 63y + 90 = 0 \end{cases}$$

Point: $(-5, 5)$

$$22) \begin{cases} x^2 + y^2 - 10x - 4y + 11 = 0 \\ x^2 + 6y^2 - 10x - 24y - 14 = 0 \end{cases}$$

Point: $(-1, 8)$

$$23) \begin{cases} -y^2 - 4x - 4y - 4 = 0 \\ 2x + y + 2 = 0 \end{cases}$$

Point: $(0, -1)$

$$24) \begin{cases} x^2 - y^2 - 2x + 6y - 12 = 0 \\ 12x^2 - y^2 - 68x + 6y + 87 = 0 \end{cases}$$

Point: $(3, 3)$

$$25) \begin{cases} -5x^2 + 6y^2 + 3x + 54y + 8 = 0 \\ x + 2y = 1 \end{cases}$$

Point: $(-1, -1)$

$$26) \begin{cases} x^2 + y^2 - 10x + 12y - 64 = 0 \\ x^2 - 29y^2 - 10x - 42y - 100 = 0 \end{cases}$$

Point: $(10, 3)$

Solve each system of equations.

$$27) \begin{cases} 2x^2 - 14x + y + 26 = 0 \\ 8x^2 - 56x + y + 86 = 0 \end{cases}$$

$$28) \begin{cases} -x^2 + 2y^2 - 4x + 6y - 144 = 0 \\ -x^2 + 2y^2 - 4x + 17y - 34 = 0 \end{cases}$$

$$29) \begin{cases} x^2 + y^2 - 7x - 4y - 14 = 0 \\ x^2 + y^2 - 14x - 4y + 49 = 0 \end{cases}$$

$$30) \begin{cases} x^2 + y^2 + 14x - 9y + 63 = 0 \\ -x^2 + 8y^2 - 14x - 72y + 99 = 0 \end{cases}$$

$$31) \begin{cases} 13x^2 - 130x - 16y + 160 = 0 \\ 13x^2 + 12y^2 - 130x - 100y - 200 = 0 \end{cases}$$

$$32) \begin{cases} x^2 + 16x + y + 66 = 0 \\ -x^2 + 14y^2 - 16x + 125y + 186 = 0 \end{cases}$$

$$33) \begin{cases} -2x^2 + y^2 + 8x - 2y - 14 = 0 \\ -8x^2 + y^2 + 56x - 2y - 104 = 0 \end{cases}$$

$$34) \begin{cases} 8x^2 - 16x + 49y - 90 = 0 \\ -8x^2 + 18y^2 + 16x + 23y - 126 = 0 \end{cases}$$

Answers to Systems of Equations (ID: 1)

- | | | | |
|---|---|-------------------------|------------------------|
| 1) $(-3, 2), (-8, 7)$ | 2) $(-6, -1), (-3, 0)$ | 3) $(-5, -1), (-9, -3)$ | 4) $(-4, -4)$ |
| 5) $(-5, -2), (2, 5)$ | 6) $(-4, -8), (-2, -2)$ | 7) $(-1, -2)$ | 8) $(10, 7)$ |
| 9) $(0, 1)$ | 10) $(-1, -1)$ | 11) $(-4, 0)$ | 12) $(1, 3), (5, 7)$ |
| 13) $(0, -2)$ | 14) No solution. | 15) $(-2, -5)$ | 16) $(9, -3), (7, -2)$ |
| 17) $(-1, 1), (-4, 7)$ | 18) $(-4, 4), (-1, 1)$ | 19) $(6, -5), (8, -6)$ | 20) $(7, 7), (0, 0)$ |
| 21) No | 22) No | 23) No | 24) Yes |
| 25) No | 26) No | 27) $(5, -6), (2, -6)$ | 28) $(-2, -10)$ |
| 29) $(9, 2)$ | 30) $(-5, 6), (-9, 6), (-5, 3), (-9, 3)$ | | |
| 31) $(10, 10), (0, 10), (8, -3), (2, -3)$ | 32) $(-7, -3), (-9, -3), (-6, -6), (-10, -6)$ | | |
| 33) $(3, 4), (3, -2), (5, 6), (5, -4)$ | 34) $(1, 2), (8, -6), (-6, -6)$ | | |