



**THIRD SPACE  
LEARNING**

# Nonlinear System of Equations Worksheet

Algebra

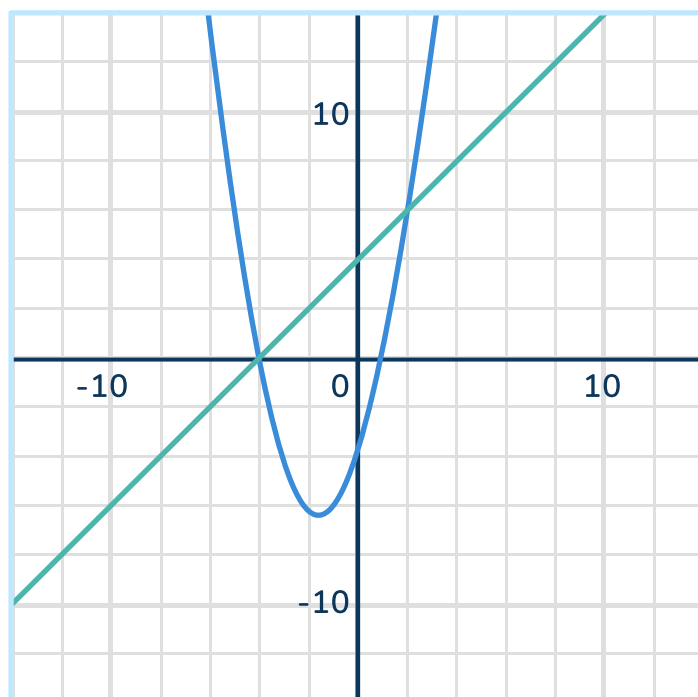
Grades 9 to 12

## Questions

Name: .....

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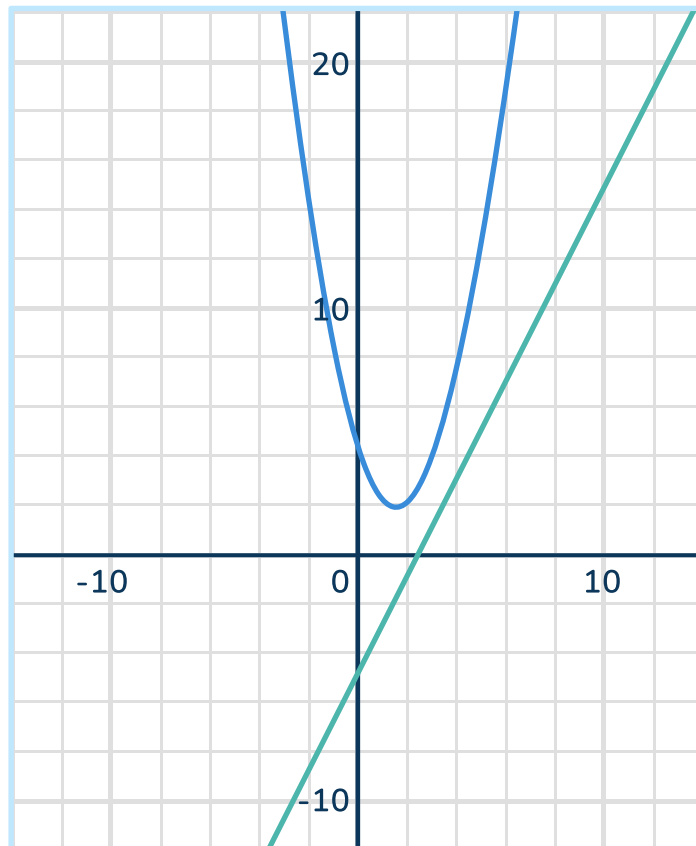
- 1 Use the graph to estimate the solution(s) of the system.



Answer

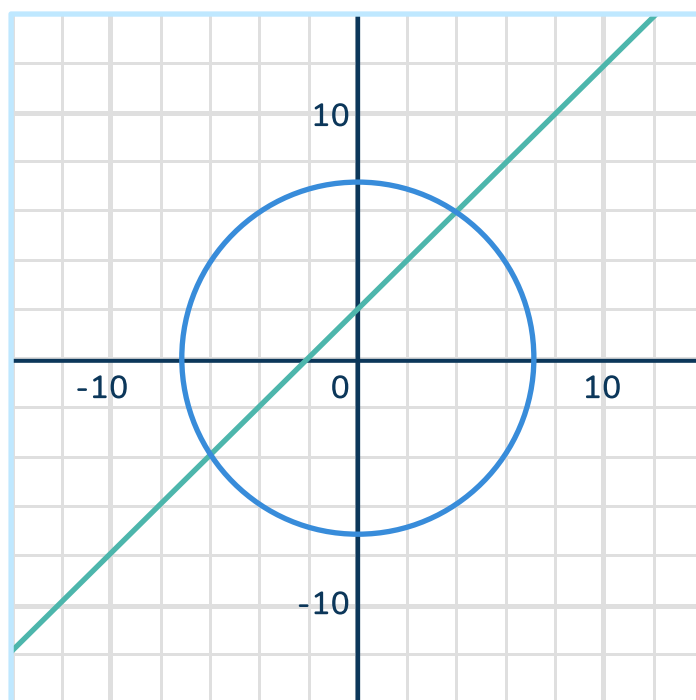
## Nonlinear System of Equations Worksheet | Grades 9 to 12

- 2 Use the graph to estimate the solution(s) of the system.



Answer

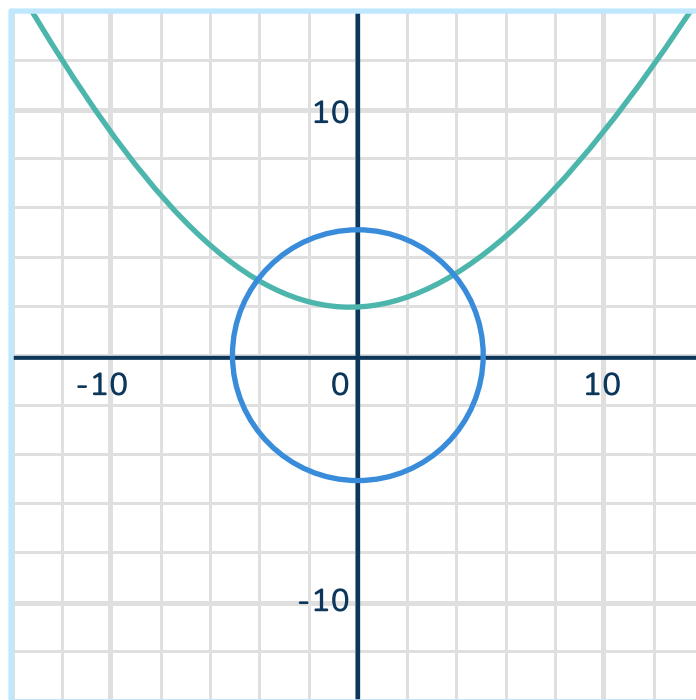
- 3 Use the graph to estimate the solution(s) of the system.



Answer

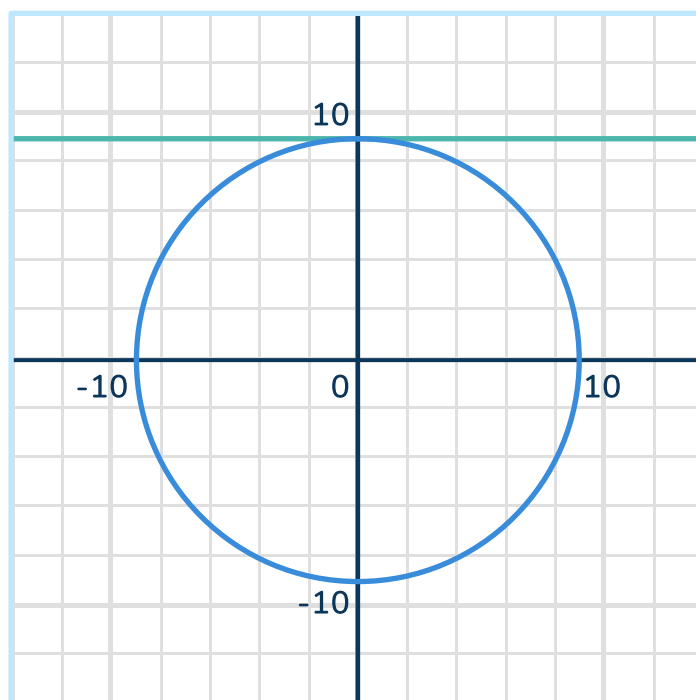
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- 4 Use the graph to estimate the solution(s) of the system.



Answer

- 5 Use the graph to estimate the solution(s) of the system.



Answer

## Nonlinear System of Equations Worksheet | Grades 9 to 12

6 Solve the system:  $y = x^2 - 6x + 5$  and  $y = -5x + 25$

Answer

7 Solve the system:  $y = 3x + 1$  and  $y = x^2 + x - 14$ .

Answer

8 Solve the system:  $x^2 + y^2 = 36$  and  $2x - y = 6$ .

Answer

## Nonlinear System of Equations Worksheet | Grades 9 to 12

**9** Solve the system:  $y = -x + 2$  and  $y = x^2 + 4x - 12$ .

Answer

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**10** Solve the system:  $x^2 + y^2 = 25$  and  $y = 2x - 5$ .

Answer

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**11** Solve the system:  $x^2 + y^2 = 30.25$  and  $x = y + 5.5$ .

Answer

## Nonlinear System of Equations Worksheet | Grades 9 to 12

**12** Solve the system:  $y - x = 2$  and  $y - x^2 = -4$ .

Answer

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**13** Solve the system:  $y = x^2 + 2x - 8$  and  $y = -x + 10$ .

Answer

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**14** Solve the system:  $y = 3x + 5$  and  $y = x^2 - x + 1$ .

Answer

## Nonlinear System of Equations Worksheet | Grades 9 to 12

**15** Solve the system:  $x^2 + y^2 = 26$  and  $y = x + 4$ .

Answer

**16** Solve the system:  $x^2 + y^2 = 18$  and  $y = x - 2$ .

Answer

**17** Solve the system:  $6x^2 - 4y^2 = 24$  and  $x - 2y = 2$ .

Answer



## Nonlinear System of Equations Worksheet | Grades 9 to 12

**18** Solve the system:  $2x^2 + 2y^2 = 64$  and  $4x - y = 12$ .

Answer

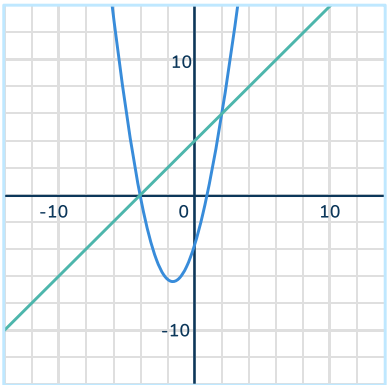
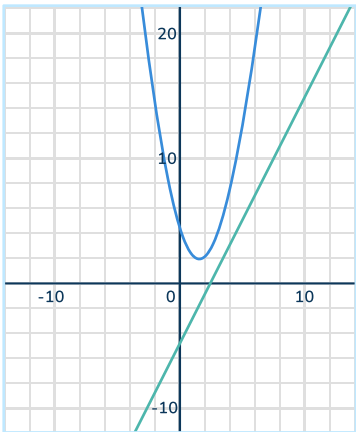
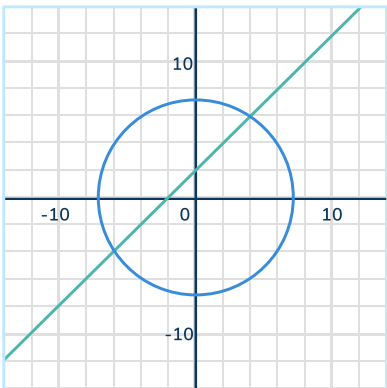
**19** Solve the system:  $y = x^2 + 3x - 5$  and  $y = -2x + 1$ .

Answer

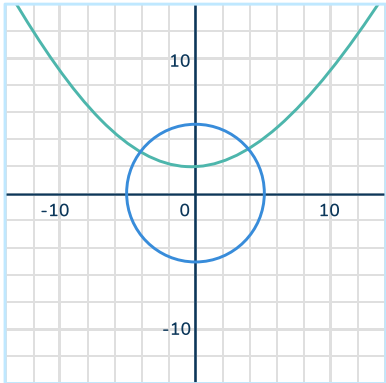
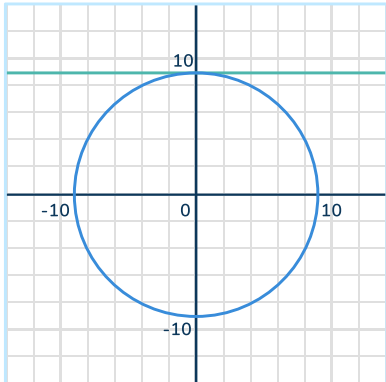
**20** Solve the system:  $y = x^2 + x - 7$  and  $y = -x + 5$ .

Answer

## Answers

Question number	Question	Answers	Standard
1	Use the graph to estimate the solution(s) of the system.  <p>The graph shows a coordinate plane with x and y axes ranging from -10 to 10. A blue parabola opens upwards with its vertex at (0, -4). A green line passes through the origin (0,0) with a positive slope. The parabola and the line intersect at two points: one in the second quadrant at approximately (-4, 0) and one in the first quadrant at approximately (2, 6).</p>	Coordinates close to $(-4, 0)$ and $(2, 6)$	HS.A.REI. C.7
2	Use the graph to estimate the solution(s) of the system.  <p>The graph shows a coordinate plane with x and y axes ranging from -10 to 10. A blue parabola opens upwards with its vertex at (0, 4). A green line passes through the origin (0,0) with a positive slope. The parabola and the line do not intersect, as the parabola is entirely above the line.</p>	No solution	HS.A.REI. C.7
3	Use the graph to estimate the solution(s) of the system.  <p>The graph shows a coordinate plane with x and y axes ranging from -10 to 10. A blue circle is centered at the origin (0,0) with a radius of 4. A green line passes through the origin (0,0) with a positive slope. The circle and the line intersect at two points: one in the third quadrant at approximately (-4, -4) and one in the first quadrant at approximately (4, 4).</p>	Coordinates close to $(-6, -4)$ and $(4, 6)$	HS.A.REI. C.7

# Nonlinear System of Equations Worksheet | Grades 9 to 12 | Answers

Question number	Question	Answers	Standard
4	<p>Use the graph to estimate the solution(s) of the system.</p> 	Coordinates close to (4,3) and (-4,3)	HS.A.REI. C.7
5	<p>Use the graph to estimate the solution(s) of the system.</p> 	Coordinates close to (0,9)	HS.A.REI. C.7
6	Solve the system: $y = x^2 - 6x + 5$ and $y = -5x + 25$	Solutions: (5,0), (-4,45)	HS.A.REI. C.7
7	Solve the system: $y = 3x + 1$ and $y = x^2 + x - 14$ .	Solutions: (-3,-8), (5,16)	HS.A.REI. C.7
8	Solve the system: $x^2 + y^2 = 36$ and $2x - y = 6$ .	Solutions: (4.8, 3.6), (0, -6)	HS.A.REI. C.7
9	Solve the system: $y = -x + 2$ and $y = x^2 + 4x - 12$ .	Solutions: (-7,9), (2,0)	HS.A.REI. C.7
10	Solve the system: $x^2 + y^2 = 25$ and $y = 2x - 5$ .	Solutions: (4,3), (0,-5)	HS.A.REI. C.7

# Nonlinear System of Equations Worksheet | Grades 9 to 12 | Answers




Question number	Question	Answers	Standard
11	Solve the system: $x^2 + y^2 = 30.25$ and $x = y + 5.5$ .	Solutions: (5.5,0), (0,-5.5)	HS.A.REI. C.7
12	Solve the system: $y - x = 2$ and $y - x^2 = -4$ .	Solutions: (3,5), (-2,0)	HS.A.REI. C.7
13	Solve the system: $y = x^2 + 2x - 8$ and $y = -x + 10$ .	Solutions: (3,7), (-6,16)	HS.A.REI. C.7
14	Solve the system: $y = 3x + 5$ and $y = x^2 - x + 1$	Solutions: $(-2\sqrt{2}-2, 11-6\sqrt{2})$ , $(2\sqrt{2}+2, 11+6\sqrt{2})$	HS.A.REI. C.7
15	Solve the system: $x^2 + y^2 = 26$ and $y = x + 4$ .	Solutions: (1,5), (-5,-1)	HS.A.REI. C.7
16	Solve the system: $x^2 + y^2 = 18$ and $y = x - 2$ .	Solutions: $(1 + 2\sqrt{2}, -1 + 2\sqrt{2})$ , $(1 - 2\sqrt{2}, -1 - 2\sqrt{2})$	HS.A.REI. C.7
17	Solve the system: $6x^2 - 4y^2 = 24$ and $x - 2y = 2$ .	Solutions: (2,0), (-2.8, -2.4)	HS.A.REI. C.7
18	Solve the system: $2x^2 + 2y^2 = 64$ and $4x - y = 12$ .	Solutions: (4,4), $(\frac{28}{17}, -\frac{92}{17})$	HS.A.REI. C.7
19	Solve the system: $y = x^2 + 3x - 5$ and $y = -2x + 1$ .	Solutions: (1,-1), (-6,13)	HS.A.REI. C.7
20	Solve the system: $y = x^2 + x - 7$ and $y = -x + 5$ .	Solutions: $(-1 + \sqrt{13}, 6 - \sqrt{13})$ , $(-1 - \sqrt{13}, 6 + \sqrt{13})$	HS.A.REI. C.7

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