

A.REI.C.7: Quadratic-Linear Systems 1a

- 1 Given the system of equations: $y = x^2 - 4x$

$$x = 4$$

The number of points of intersection is

- 1) 1
 - 2) 2
 - 3) 3
 - 4) 0
- 2 When the system of equations $y + 2x = x^2$ and $y = x$ is graphed on a set of axes, what is the total number of points of intersection?
- 1) 1
 - 2) 2
 - 3) 3
 - 4) 0
- 3 How many solutions are there for the following system of equations?

$$y = x^2 - 5x + 3$$

$$y = x - 6$$

- 1) 1
 - 2) 2
 - 3) 3
 - 4) 0
- 4 Given: $y = \frac{1}{4}x - 3$

$$y = x^2 + 8x + 12$$

In which quadrant will the graphs of the given equations intersect?

- 1) I
- 2) II
- 3) III
- 4) IV

- 5 The solution of the system of equations $y = x^2 - 2$ and $y = x$ is

- 1) (1, 1) and (-2, -2)
- 2) (2, 2) and (-1, -1)
- 3) (1, 1) and (2, 2)
- 4) (-2, -2) and (-1, -1)

- 6 What is the solution set of the system of equations $x + y = 5$ and $y = x^2 - 25$?

- 1) $\{(0, 5), (11, -6)\}$
- 2) $\{(5, 0), (-6, 11)\}$
- 3) $\{(-5, 0), (6, 11)\}$
- 4) $\{(-5, 10), (6, -1)\}$

- 7 What is the solution of the system of equations $y - x = 5$ and $y = x^2 + 5$?

- 1) (0, 5) and (1, 6)
- 2) (0, 5) and (-1, 6)
- 3) (2, 9) and (-1, 4)
- 4) (-2, 9) and (-1, 4)

- 8 Which ordered pair is a solution to the system of equations $y = x + 3$ and $y = x^2 - x$?

- 1) (6, 9)
- 2) (3, 6)
- 3) (3, -1)
- 4) (2, 5)

- 9 When solved graphically, what is the solution to the following system of equations?

$$y = x^2 - 4x + 6$$

$$y = x + 2$$

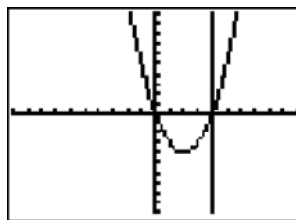
- 1) (1, 4)
- 2) (4, 6)
- 3) (1, 3) and (4, 6)
- 4) (3, 1) and (6, 4)

- 10 Which ordered pair is in the solution set of the system of equations $y = -x + 1$ and $y = x^2 + 5x + 6$?
- 1) $(-5, -1)$
 - 2) $(-5, 6)$
 - 3) $(5, -4)$
 - 4) $(5, 2)$
- 11 Which values of x are in the solution set of the following system of equations?
- $$y = 3x - 6$$
- $$y = x^2 - x - 6$$
- 1) $0, -4$
 - 2) $0, 4$
 - 3) $6, -2$
 - 4) $-6, 2$
- 12 Which ordered pair is a solution of the system of equations $y = x^2 - x - 20$ and $y = 3x - 15$?
- 1) $(-5, -30)$
 - 2) $(-1, -18)$
 - 3) $(0, 5)$
 - 4) $(5, -1)$
- 13 Given the equations: $y = x^2 - 6x + 10$
- $$y + x = 4$$
- What is the solution to the given system of equations?
- 1) $(2, 3)$
 - 2) $(3, 2)$
 - 3) $(2, 2)$ and $(1, 3)$
 - 4) $(2, 2)$ and $(3, 1)$
- 14 The graphs of the equations $y = x^2 + 4x - 1$ and $y + 3 = x$ are drawn on the same set of axes. At which point do the graphs intersect?
- 1) $(1, 4)$
 - 2) $(1, -2)$
 - 3) $(-2, 1)$
 - 4) $(-2, -5)$
- 15 The equations $y = 2x + 3$ and $y = -x^2 - x + 1$ are graphed on the same set of axes. The coordinates of a point in the solution of this system of equations are
- 1) $(0, 1)$
 - 2) $(1, 5)$
 - 3) $(-1, -2)$
 - 4) $(-2, -1)$
- 16 What is the solution of the following system of equations?
- $$y = (x + 3)^2 - 4$$
- $$y = 2x + 5$$
- 1) $(0, -4)$
 - 2) $(-4, 0)$
 - 3) $(-4, -3)$ and $(0, 5)$
 - 4) $(-3, -4)$ and $(5, 0)$
- 17 When the system of equations $y + 2 = (x - 4)^2$ and $2x + y - 6 = 0$ is solved graphically, the solution is
- 1) $(-4, -2)$ and $(-2, 2)$
 - 2) $(4, -2)$ and $(2, 2)$
 - 3) $(-4, 2)$ and $(-6, 6)$
 - 4) $(4, 2)$ and $(6, 6)$

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Answer Section

1 ANS: 1



$$y = x^2 - 4x = (4)^2 - 4(4) = 0. \quad (4, 0) \text{ is the only intersection.}$$

REF: 060923ge

2 ANS: 2

$$x + 2x = x^2 \quad (0, 0), (3, 3)$$

$$0 = x^2 - 3x$$

$$0 = x(x - 3)$$

$$x = 0, 3$$

REF: 061406ge

3 ANS: 1

$$x^2 - 5x + 3 = x - 6 \quad y = 3 - 6 = -3 \quad (3, -3)$$

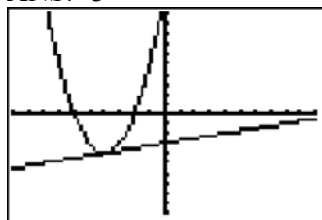
$$x^2 - 6x + 9 = 0$$

$$(x - 3)^2 = 0$$

$$x = 3$$

REF: 061330ia

4 ANS: 3



REF: 061011ge

5 ANS: 2

$$x^2 - 2 = x$$

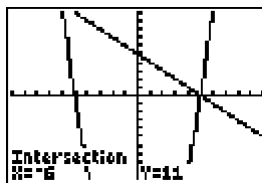
$$x^2 - x - 2 = 0$$

$$(x - 2)(x + 1) = 0$$

$$x = 2, -1$$

REF: 011409ge

6 ANS: 2



$$y = -x + 5. \quad -x + 5 = x^2 - 25 \quad . \quad y = -(-6) + 5 = 11.$$

$$0 = x^2 + x - 30 \quad y = -5 + 5 = 0$$

$$0 = (x+6)(x-5)$$

$$x = -6, 5$$

REF: 061213ia

7 ANS: 1

$$x^2 + 5 = x + 5 \quad y = (0) + 5 = 5$$

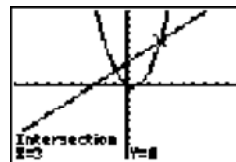
$$x^2 - x = 0 \quad y = (1) + 5 = 6$$

$$x(x-1) = 0$$

$$x = 0, 1$$

REF: 081406ge

8 ANS: 2



$$x^2 - x = x + 3 \quad . \quad \text{Since } y = x + 3, \text{ the solutions are } (3, 6) \text{ and } (-1, 2).$$

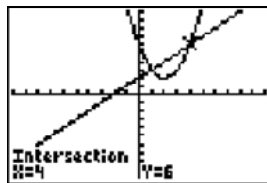
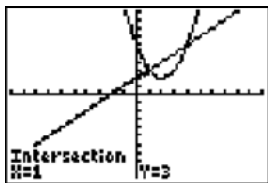
$$x^2 - 2x - 3 = 0$$

$$(x-3)(x+1) = 0$$

$$x = 3 \text{ or } -1$$

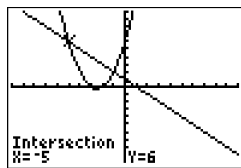
REF: 061118ia

9 ANS: 3



REF: 081118ge

10 ANS: 2



$$x^2 + 5x + 6 = -x + 1, \quad y = -x + 1$$

$$x^2 + 6x + 5 = 0 \quad = -(-5) + 1$$

$$(x + 5)(x + 1) = 0 \quad = 6$$

$$x = -5 \text{ or } -1$$

REF: 080812ia

11 ANS: 2

$$x^2 - x - 6 = 3x - 6$$

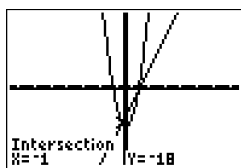
$$x^2 - 4x = 0$$

$$x(x - 4) = 0$$

$$x = 0, 4$$

REF: 081015a2

12 ANS: 2



$$x^2 - x - 20 = 3x - 15, \quad y = 3x - 15$$

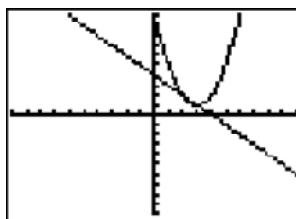
$$x^2 - 4x - 6 = 0 \quad = 3(-1) - 15$$

$$(x + 5)(x + 1) = 0 \quad = -18$$

$$x = 5 \text{ or } -1$$

REF: 010922ia

13 ANS: 4



$$y + x = 4, \quad x^2 - 6x + 10 = -x + 4, \quad y + x = 4, \quad y + 2 = 4$$

$$y = -x + 4, \quad x^2 - 5x + 6 = 0, \quad y + 3 = 4, \quad y = 2$$

$$(x - 3)(x - 2) = 0, \quad y = 1$$

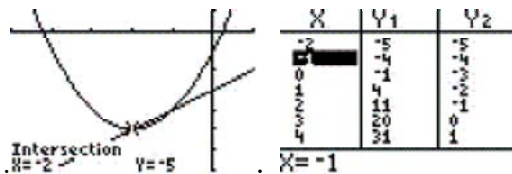
$$x = 3 \text{ or } 2$$

REF: 080912ge

14 ANS: 4

$$\begin{aligned}
 x-3 &= x^2+4x-1 \\
 x^2+3x+2 &= 0 \\
 (x+2)(x+1) &= 0 \\
 x &= -2 \quad x = -1
 \end{aligned}$$

$$\begin{aligned}
 y+3 &= x \\
 y &= x-3 \\
 y+3 &= x \\
 y &= -2-3 \\
 y &= -5
 \end{aligned}$$



REF: 060018a

15 ANS: 4

$$2x+3 = -x^2 - x + 1 \quad y = 2(-2)+3 = -1$$

$$x^2 + 3x + 2 = 0$$

$$(x+2)(x+1) = 0$$

$$x = -2, -1$$

REF: 081516ge

16 ANS: 3

$$(x+3)^2 - 4 = 2x + 5$$

$$x^2 + 6x + 9 - 4 = 2x + 5$$

$$x^2 + 4x = 0$$

$$x(x+4) = 0$$

$$x = 0, -4$$

REF: 081004ge

17 ANS: 2

$$(x-4)^2 - 2 = -2x + 6 \quad y = -2(4) + 6 = -2$$

$$x^2 - 8x + 16 - 2 = -2x + 6 \quad y = -2(2) + 6 = 2$$

$$x^2 - 6x + 8 = 0$$

$$(x-4)(x-2) = 0$$

$$x = 4, 2$$

REF: 081319ge