

A.A.11: Solve a system of one linear and one quadratic equation in two variables, where only factoring is required. Note: The quadratic equation should represent a parabola and the solution(s) should be integers.

1. 060810ia, P.I. A.A.11

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

- [A] (2, 2) [B] (0, 0)
[C] (-1, 1) [D] (-2, -2)

2. 080812ia, P.I. A.A.11

Which ordered pair is in the solution set of the system of equations $y = -x + 1$ and $y = x^2 + 5x + 6$?

- [A] (-5, -1) [B] (5, -4)
[C] (-5, 6) [D] (5, 2)

3. 010922ia, P.I. A.A.11

Which ordered pair is a solution of the system of equations $y = x^2 - x - 20$ and $y = 3x - 15$?

- [A] (-1, -18) [B] (5, -1)
[C] (-5, -30) [D] (0, 5)

4. 060018a, P.I. A.A.11

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?

- [A] (1, 4) [B] (-2, 1)
[C] (1, -2) [D] (-2, -5)

5. 080135a, P.I. A.A.11

Solve the following system of equations algebraically:

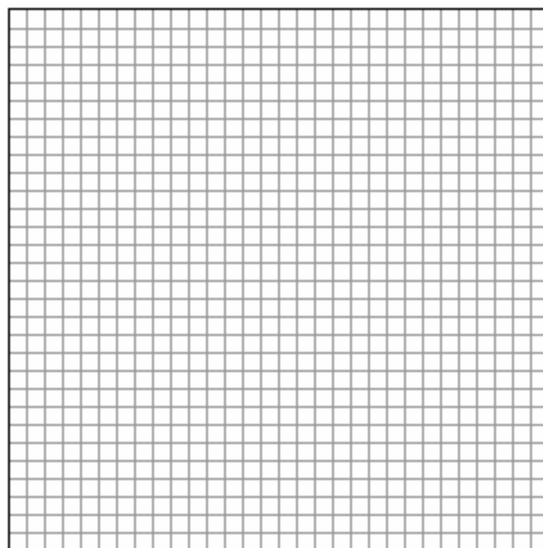
$$y = x^2 + 4x - 2$$
$$y = 2x + 1$$

6. 080538a, P.I. A.A.11

Solve the following system of equations:

$$y = x^2 + 4x + 1$$
$$y = 5x + 3$$

[The use of the grid is optional.]

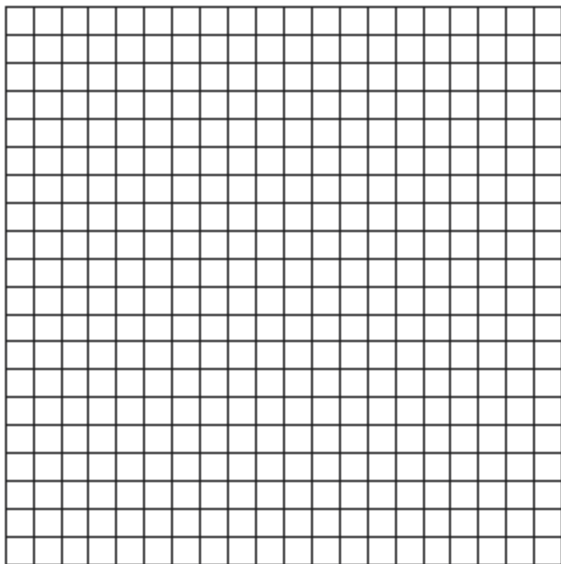


7. 060839a, P.I. A.A.11

Solve the following system of equations algebraically or graphically for x and y :

$$y = x^2 - 4x + 3$$

$$y = x - 1$$

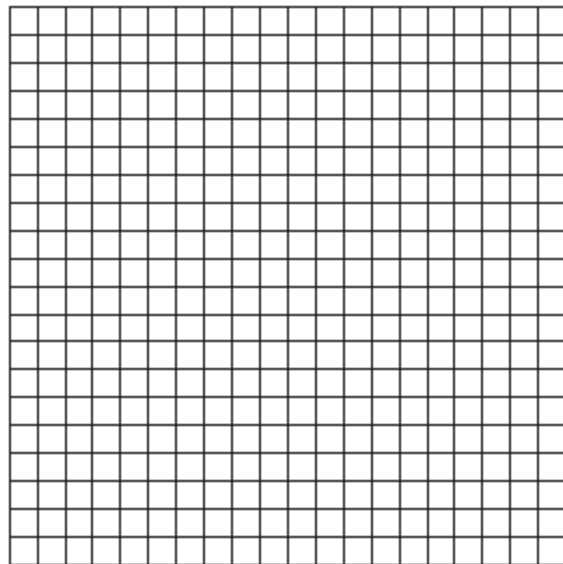


8. 080839a, P.I. A.A.11

Solve the following system of equations algebraically or graphically for x and y :

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

$$y = 2x + 6$$

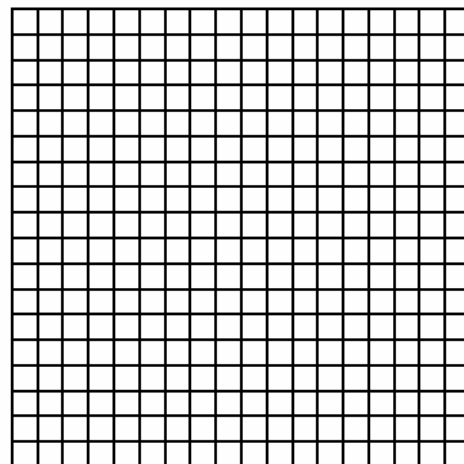


9. 069935a, P.I. A.A.11

Solve the following system of equations algebraically or graphically for x and y :

$$y = x^2 + 2x - 1$$

$$y = 3x + 5$$



[1] A

[2] C

[3] A

[4] D

[4] $(-3,-5)$ and $(1,3)$, and appropriate algebraic work is shown.

[3] Appropriate algebraic work is shown, but $x = -3$ and $x = 1$ are given as the solution.

or [3] Appropriate algebraic work is shown, but only one correct solution is given, such as $(1,3)$.

[2] $(-3,-5)$ and $(1,3)$, but a graphic solution is shown.

or [2] Correct substitution and an algebraic equation set equal to zero are shown, but the result is not factored, such as $x^2 + 2x - 3 = 0$.

[1] Any correct substitution is shown, such as $2x + 1 = x^2 + 3x - 2$.

or [1] $(-3,-5)$ and $(1,3)$, but no algebraic work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[5] incorrect procedure.

[4] $(-1,-2)$ and $(2,13)$, and appropriate work is shown, such as an algebraic or graphic solution or trial and error with at least three trials and appropriate checks.

[3] Appropriate work is shown, but one computational or graphing error is made.

or [3] Appropriate work is shown, but only one solution is found or only the x - or the y -values are found.

[2] Appropriate work is shown, but two or more computational or graphing errors are made.

or [2] Appropriate work is shown, but one conceptual error is made.

or [2] The trial-and-error method is used to find the correct solutions, but only two trials and appropriate checks are shown.

or [2] The trial-and-error method is attempted and at least six systematic trials and appropriate checks are shown, but no solution is found.

or [2] Both equations are graphed correctly, but neither ordered pair is identified.

or [2] Only one equation is graphed correctly, but an appropriate solution is found.

or [2] An incorrect quadratic equation of equal difficulty is solved appropriately, and appropriate solutions are found.

[1] Appropriate work is shown, but one conceptual error and one computational or graphing error are made.

or [1] One equation is graphed correctly, but no further correct work is shown.

or [1] An incorrect equation of a lesser degree of difficulty, such as a linear equation, is solved appropriately.

or [1] A correct substitution is made and the system of equations is simplified to a single quadratic equation set equal to zero, but no further correct work is shown.

or [1] $(-1,-2)$ and $(2,13)$, but no work or only one trial with an appropriate check is shown.

[0] $(-1,-2)$ or $(2,13)$, but no work or only one trial with an appropriate check is shown.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

[6] obviously incorrect procedure.

[4] (1,0) and (4,3), and appropriate work is shown, such as an algebraic or a graphic solution.

[3] Appropriate work is shown, but one computational or graphing error is made.

or [3] Appropriate algebraic work is shown, but only one solution is found or only the x -values or the y -values are found correctly.

or [3] Both equations are graphed correctly showing two points of intersection, but the coordinates of the solutions are not written or only one is written.

[2] Appropriate work is shown, but two or more computational or graphing errors are made.

or [2] Appropriate work is shown, but one conceptual error is made, such as failing to extend the line or the parabola to intersect at a second point.

or [2] The system of equations is written as $x^2 - 5x + 4 = 0$, but no further correct work is shown.

or [2] The equation $y = x^2 - 4x + 3$ is graphed correctly, but no further correct work is shown.

or [2] (1,0) and (4,3), but a method other than an algebraic or graphic solution is used, such as trial and error with at least three trials and appropriate checks.

[1] Appropriate work is shown, but one conceptual error and one computational or graphing error are made.

or [1] The equation $y = x - 1$ is graphed correctly, but no further correct work is shown.

or [1] A correct substitution results in $x - 1 = x^2 - 4x + 3$, but no further correct work is shown.

or [1] (1,0) and (4,3), but no algebraic or graphic work is shown or the trial-and-error method is used and fewer than three trials and appropriate checks are shown.

or [1] The trial-and-error method is attempted and at least six systematic trials and appropriate checks are shown, but no solution is found.

[7] or [1] (1,0) and (4,3), but no work is shown.

[0] (1,0) or (4,3), but no work is shown.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

[4] (-2,2) and (0,6), and appropriate algebraic or graphic work is shown.

[3] Appropriate work is shown, but one computational or graphing error is made.

or [3] Appropriate algebraic work is shown, but only one solution is found correctly or only the x -values or the y -values are found correctly.

or [3] Both equations are graphed correctly showing two points of intersection, but the coordinates are not stated or are stated incorrectly.

[2] Appropriate work is shown, but two or more computational or graphing errors are made, but appropriate coordinates are stated.

or [2] Appropriate work is shown, but one conceptual error is made.

or [2] The equation $y = x^2 + 4x + 6$ is graphed correctly, but no further correct work is shown.

or [2] (-2,2) and (0,6), but a method other than an algebraic or graphic solution is used, such as trial and error with at least three trials and appropriate checks.

[1] Appropriate work is shown, but one conceptual error and one computational or graphing error are made.

or [1] The system of equations is simplified to a single equation, but no further correct work is shown.

or [1] The equation $y = 2x + 6$ is graphed correctly, but no further correct work is shown.

or [1] The trial-and-error method is attempted and at least six systematic trials and appropriate checks are shown, but the solutions are not found.

or [1] (-2,2) and (0,6), but no algebraic or graphic work is shown or the trial-and-error method is used and fewer than three trials and appropriate checks are shown.

[0] (-2,2) or (0,6), but no algebraic or graphic work is shown or the trial-and-error method is used and fewer than three trials and appropriate checks are shown.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a

[8] correct response that was obtained by an

obviously incorrect procedure.

[4] (3,14) and (-2,-1) and either an algebraic or a graphic solution is shown.

[3] An appropriate method is shown, but only one correct ordered pair is identified.

or [3] An appropriate method is shown, but one computational mistake is made.

or [3] An appropriate method is shown, but values are given only for x .

[2] The substitution is correct, but the quadratic produced is not factored correctly.

or [2] Both equations are graphed correctly, but neither ordered pair is identified.

[1] Only one equation is graphed correctly.

or [1] The substitution is incorrect, but it produces a linear equation that is solved correctly.

or [1] Only the substitution is correct.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[9] incorrect procedure.