Lesson 7.2: Solving Systems of Equations Algebraically

Explore Your Understanding Assignment

This assignment includes multiple choice and short answer questions. For multiple choice questions, select the best answer. Each is worth 1 mark. Marks assigned to short answer questions are indicated for each question. Be sure to show all necessary work.

(1)_____ 1. The y-value of a solution to the system $y = -x^2 + 4x + 3$ and $x + y = -11$ is

A. –9
B. –2
C. 7
D. 18

Use the following information to answer question 2.

Terry tried to solve the system $x^2 + 2x + 2y = 5$ and $3x^2 - 4x = 3 + y$ as follows:

Line 1	$x^2 + 2x + 2y = 5$
Line 2	$y = -\frac{1}{2}x^2 - x + \frac{5}{2}$
Line 3	$x^2 + 2x + 2\left(-\frac{1}{2}x^2 - x + \frac{5}{2}\right) = 5$
Line 4	$5 = 5$

(1)_____ 2. Terry concluded that there are an infinite number of solutions to the system. Terry's first error appears in line

A. 2
B. 3
C. 4
D. Terry did not make any errors.

(1)_____ 3. When using an elimination strategy to solve the system $3a^2 = 17 - 5t$ and $7a + 24 = 3a^2 - 2t$, the variable that can be eliminated is

A. a
B. a^2
C. t
D. an elimination strategy cannot be used with this system

(1)_____ 4. The system $3x - y + 4 = 0$ and $x^2 - 8y - 1 = 0$ will have

A. 0 real solutions
B. 1 real solutions
C. 2 real solutions
D. an infinite number of real solutions

(1)_____ 5. The statement that is **false** is

A. A system of quadratic-quadratic equations can have exactly one solution.
B. A system of quadratic-quadratic equations has no solutions if the graphs do not intersect.
C. It is impossible for a system of linear-quadratic equations to have an infinite number of solutions.
D. The solution to a system of equations can be verified by substituting the solution into one of the original equations.

(3) 6. Solve the following system algebraically. Verify the solution.

$$\begin{cases} y = \frac{1}{2}(x-3)^2 + 4 \\ y = -\frac{1}{2}(x-1)^2 + 6 \end{cases}$$

(3) 7. Two integers have a sum of 11. The sum of the greater integer squared and 30 times the smaller integer is 205. What are the two integers?

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