Unit 9 Test

Solving Systems, Matrix Operations & Gaussian Elimination

Name: _____ Date: _____ Score: _____ / 10

INSTRUCTIONS

For multiple-choice questions, circle the letter of the correct answer. For short-answer and problem-solving questions, show your complete work in the space provided. No calculator unless your teacher says otherwise.

1 **Solve by substitution: y = 2x + 1 and 3x + y = 11.** Multiple Choice

A (2, 5)
B (5, 2)
C (3, 7)
D (1, 3)

2 **Solve by elimination: 2x + y = 7 and x − y = 2.** Multiple Choice

A (3, 1)
B (1, 3)
C (2, 3)
D (4, −1)

3 **Short Answer — Solve the nonlinear system: $y = x^2$ and $y = 2x + 3$. Find all solution points.** Short Answer

4 **Add the matrices: [[1, 2], [3, 4]] + [[5, 6], [7, 8]]** Multiple Choice

A [[6, 8], [10, 12]]
B [[5, 12], [21, 32]]
C [[6, 8], [10, 8]]
D [[4, 4], [4, 4]]

5 **Multiply the matrices: [[1, 2], [3, 4]] · [[2, 0], [1, 2]]** Multiple Choice

A [[4, 4], [10, 8]]
B [[2, 0], [3, 8]]
C [[4, 4], [8, 10]]
D [[2, 4], [3, 8]]

6 **Short Answer — Find the determinant of [[3, 4], [2, 5]].** Short Answer

7 **Use Gaussian elimination (or elimination) to solve: x + y = 5 and 2x − y = 1.** Multiple Choice

A (2, 3)
B (3, 2)
C (1, 4)
D (2, 1)

8 **Which ordered pair is a solution to the inequality y < −2x + 5?** Multiple Choice

A (0, 0)
B (3, 0)
C (1, 4)
D (−1, 10)

9 **Problem Solving — Use elimination (or Gaussian elimination) to solve the system: x + y + z = 6, 2x − y + z = 3, x + 2y − z = 2. Show all steps.** Problem Solving

10 **Problem Solving — Solve the nonlinear system: $x^2 + y^2 = 25$ and y = x + 1. Find all solution points and show your work.** Problem Solving