

Name: \_\_\_\_\_

Score: \_\_\_\_\_ / 100

Student ID: \_\_\_\_\_

**DO NOT OPEN THE EXAM UNTIL YOU ARE TOLD TO DO SO**

	1	2	3	4	5	6	Total
✓							
<b>Score</b>							

**INSTRUCTIONS FOR STUDENTS**

- Questions are on both sides of the paper. This is an 5 question exam (One extra credit problem can be attempted for a total of 6 questions).
- Students have 50 minutes to complete the exam.
- **PLEASE SHOW ALL WORK.** Any unjustified claims will receive no credit. Clearly box your final answer.
- You **MUST** complete **5** problems for credit. In the above table in the row with the ✓, please mark with a ✓ which problems you want to be graded. If you wish to do a 6<sup>th</sup> problem for extra credit, please write *EC* in the ✓ row for the problem you wish to be counted for extra credit.
- No notes, textbooks, phones, calculators, etc. are allowed for the exam.
- Each of the 5 questions you choose to do will be graded out of 4 points. The score will then be totaled and multiplied by 5 to get a raw score out of 100 points. If you choose to do a 6<sup>th</sup> problem for extra credit, the most that will be awarded for that question will be 3 points. So, the highest possible score on this examination is 103 points out of 100.
- The back of the test can be used for scratch work.

GOOD LUCK!

1) Solve the following system of equations:

$$\begin{cases} x - 2y + 3z = 7 \\ 2x + y + z = 4 \\ -3x + 2y - 2z = -10 \end{cases}$$

2) Solve the following system of equations:

$$\begin{cases} 2x^2 + y^2 = 24 \\ x^2 - y^2 = -12 \end{cases}$$

3) Graph the solution set of the following system of inequalities:

$$\begin{cases} x^2 + 2y^2 \leq 24 \\ -x^2 + y^2 \leq -12 \end{cases}$$

4) Solve the following system using Gaussian elimination or Gauss-Jordan elimination.

$$\begin{cases} 3x + 7y + 22z = 83 \\ x + 3y + 10z = 37 \\ -2x - 5y - 18z = -66 \end{cases}$$

5) Compute  $A \cdot B$  for the following matrices:

$$A = \begin{pmatrix} 1 & 4 \\ 8 & 3 \end{pmatrix} \quad B = \begin{pmatrix} 2 & 5 \\ 1 & 6 \end{pmatrix}$$

6) The matrix  $A$  is below. Find its inverse matrix,  $A^{-1}$ .

$$A = \begin{pmatrix} 9 & 7 \\ 5 & 3 \end{pmatrix}$$

**THIS PAGE IS LEFT BLANK FOR ANY SCRATCH WORK**

**END OF TEST**