

| | | |
|--------------|------------|----------------|
| <u>Name:</u> | <u>ID:</u> | <u>serial:</u> |
|--------------|------------|----------------|

MATH-260

Term-082

QUIZ-4

1) If $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, then show that: $A^2 = (a + d)A - (ad - bc)I$, Where **I** denotes the 2 X 2 identity matrix.

2) Use the inverse to solve the linear system

$$\begin{bmatrix} 1 & 1 & 5 \\ 1 & 4 & 13 \\ 3 & 2 & 12 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$$

3) Evaluate

$$\begin{vmatrix} 1 & 2 & 1 & -1 & 10 \\ 2 & 1 & 3 & 3 & 9 \\ 0 & 1 & -2 & 3 & 1 \\ -1 & 4 & -2 & 4 & -20 \\ 0 & 0 & 0 & 0 & 1 \end{vmatrix}$$

4) The square matrix A is called orthogonal provided that $A^T = A^{-1}$. Find $\det(A)$ where A is orthogonal.