

MATH 107-S2 1441H

MCQ FORM 2 - CH 3: DETERMINANTS

Choose the correct answer for the following questions:

Q.1

For $A = \begin{bmatrix} 2 & 1 & 0 & 1 \\ 0 & 3 & 0 & 2 \\ 0 & 6 & 1 & 4 \\ 1 & 1 & 0 & 4 \end{bmatrix}$, $\det(A) = \dots$

- a) 0 b) 24 c) 6 d) 19

Q.2

If $A = \begin{bmatrix} 2 & 3 & 5 \\ 0 & 2 & 3 \\ 0 & 0 & 1 \end{bmatrix}$, then its inverse is ...

- a) $\begin{bmatrix} 1/2 & -3/4 & -1/4 \\ 0 & 1/2 & -3/2 \\ 0 & 0 & 1 \end{bmatrix}$ b) $\begin{bmatrix} 1/2 & 1/3 & 1/5 \\ 0 & 1/2 & 1/3 \\ 0 & 0 & 1 \end{bmatrix}$ c) $\begin{bmatrix} -1/2 & 3/4 & 1/4 \\ 0 & -1/2 & 3/2 \\ 0 & 0 & -1 \end{bmatrix}$ d) $\begin{bmatrix} -2 & 3 & 1 \\ 0 & -1 & 3 \\ 0 & 0 & -1 \end{bmatrix}$

Q.3

If $A = \begin{bmatrix} \lambda & 3 & 0 \\ -3 & \lambda - 6 & 0 \\ 0 & 0 & \lambda - 4 \end{bmatrix}$, then all values of λ for which $\det(A) = 0$ are ...

- a) $\lambda = -3$ or $\lambda = 4$ b) $\lambda = -3$ c) $\lambda = 3$ or $\lambda = 4$ d) $\lambda = 4$

Q.4

By using Cramer's rule for solving the following equations:

$$3x + 5y = 7, \quad 6x + 2y + 4z = 10, \quad -x + 4y - 3z = 0$$

$\det(A)=\dots$, $\det(A_1)=\dots$, and $x = \dots$

a) 4,8,2 b) -1,2,3 c) 4, -4, -1 d) -4,4,1

Q.5

If $A = \begin{bmatrix} 2 & 0 & -3 \\ 0 & -3 & 2 \\ -1 & 0 & 2 \end{bmatrix}$, then the matrix of cofactors is

a) $\begin{bmatrix} 2 & 0 & -1 \\ 0 & -3 & 0 \\ -3 & 2 & 2 \end{bmatrix}$ b) $\begin{bmatrix} -6 & -2 & -3 \\ 0 & 1 & 0 \\ -9 & -4 & -6 \end{bmatrix}$ c) $\begin{bmatrix} -6 & 0 & -9 \\ -2 & 1 & -4 \\ -3 & 0 & -6 \end{bmatrix}$ d) $\begin{bmatrix} 2 & 0 & 3 \\ 2/3 & -1/3 & 4/3 \\ 1 & 0 & 2 \end{bmatrix}$
