

MATH 107-S2 1441H

MCQ FORM 1 - CH 3: DETERMINANTS

Choose the correct answer for the following questions:

Q.1

For $A = \begin{bmatrix} 1 & k^2 & k^3 \\ 1 & k^2 & k^3 \\ 1 & k^2 & k^3 \end{bmatrix}$, $\det(A) = \dots$

- a) k^5 b) k^3 c) 0 d) $k^3 - k^2$

Q.2

For $A = \begin{bmatrix} -1 & 3 & 4 & 0 \\ 0 & 2 & -1 & 7 \\ 0 & 0 & 3 & 0 \\ 0 & 0 & 0 & 2 \end{bmatrix}$, $\det(A) = \dots$

- a) 0 b) 12 c) -12 d) -6

Q.3

If $A = \begin{bmatrix} 3 & 0 & 0 \\ 2 & 1 & 0 \\ 4 & 3 & 2 \end{bmatrix}$, then its inverse is ...

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

Q.4

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) $\begin{bmatrix} -6 & 0 & -9 \\ -2 & 1 & -4 \\ -3 & 0 & -6 \end{bmatrix}$

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

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

Q.5

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

$$4x + 5y = 2, \quad 11x + y + 2z = 3, \quad x + 5y + 2z = 1$$

$\det(A) = \dots$, $\det(A_3) = \dots$, and $z = \dots$

a) $-132, -36, 11/3$

b) $-132, 12, -1/11$

c) $3/11, 2/11, -1/11$

d) $-132, -36, 3/11$
