

MATH 107-S2 1441H

MCQ FORM 4 - CH 3: DETERMINANTS

Choose the correct answer for the following questions:

Q.1

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

Q.2

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

- a) 0 b) -4 c) 8 d) 4

Q.3

If A is a 3×3 matrix and $\det(A) = -5$, then $\det(3A^{-1}) = \dots$

- a) $\frac{3}{5}$ b) $-\frac{3}{5}$ c) $-\frac{27}{5}$ d) $\frac{27}{5}$

Q.4

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

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

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

a) $-132, -36, 11/3$ b) $-132, -24, 11/2$ c) $3/11, 2/11, -1/11$ d) $-132, -36, 3/11$

Q.5

If $A = \begin{bmatrix} 2 & 0 & 3 \\ 0 & 3 & 2 \\ -2 & 0 & -4 \end{bmatrix}$, then the matrix of cofactors is

a) $\begin{bmatrix} -12 & -4 & 6 \\ 0 & -2 & 0 \\ -9 & -4 & 6 \end{bmatrix}$ 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) $\begin{bmatrix} -12 & 0 & -9 \\ -4 & -2 & -4 \\ 6 & 0 & 6 \end{bmatrix}$
