○ (E)

6

Question
(2 Points)

One of the following matrices is in row echelon form but is not in reduced row echelon form

(A) $\begin{bmatrix} 1 & 0 & 4 & 1 & 0 \\ 0 & 1 & 1 & 2 & 0 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$ (B) $\begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 0 & 5 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$ (C) $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}$

(D) $\begin{bmatrix} 1 & 4 & 1 & 0 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$ (E) $\begin{bmatrix} 1 & 0 & 2 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$

○ (A)

● (B)

○ (C)

○ (D)

○ (E)

Linear 1 quiz Section 1

forms.office.com/Pages/ResponsePage.aspx?id=...

Question

If $A = \begin{bmatrix} 1 & 0 & 2 \\ 1 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$, then A^{-1}

(A) $\begin{bmatrix} 1 & 0 & -2 \\ 0 & -1 & -2 \\ 0 & 1 & 1 \end{bmatrix}$ (B) $\begin{bmatrix} 1 & 0 & -2 \\ 0 & -1 & -2 \\ 1 & 0 & 1 \end{bmatrix}$ (C) $\begin{bmatrix} 1 & 0 & -2 \\ 1 & -1 & -2 \\ 0 & 1 & 1 \end{bmatrix}$

(D) $\begin{bmatrix} 1 & 0 & -2 \\ 1 & -1 & -2 \\ 1 & 0 & 1 \end{bmatrix}$ (E) $\begin{bmatrix} 1 & 0 & -2 \\ 1 & -1 & -2 \\ 0 & 0 & 1 \end{bmatrix}$

(A)
(B)
(C)
(D)
(E)

8

Question
(2 Points)

Suppose $A = \begin{bmatrix} 1 & 6 & 5 \\ -1 & -5 & -3 \\ 0 & 7 & 14 \end{bmatrix}$, $x = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$ and $b = \begin{bmatrix} b_1 \\ b_2 \\ b_3 \end{bmatrix}$.

The condition(s) on b_1, b_2 and b_3 so that the system $Ax = b$ is consistent is(are)

(A) $b_3 = 7b_1 + 7b_2$, $b_1 + b_2 = 0$ and $b_1 = 0$

(B) $b_3 = -7b_1 + -7b_2$

(C) The system is consistent for any b_1, b_2 and b_3

(D) $b_3 = 7b_1 + 7b_2$

(E) $b_3 = 7b_1 + 7b_2$ and $b_1 + b_2 = 0$

- (A)
- (B)
- (C)
- (D)
- (E)

9

Question [redacted]

Question
(Mark 2)

If the augmented matrix of a linear system is reduced to

$$\begin{bmatrix} 1 & 5 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

then the solution of this system equals

(A) $x_1 = -5t,\ x_2 = t,\ x_3 = s,\ x_4 = s \quad t, s \in \mathbb{R}$

(B) $x_1 = 0,\ x_2 = 0,\ x_3 = 0,\ x_4 = 0$

(C) $x_1 = -5t,\ x_2 = t,\ x_3 = s,\ x_4 = r \quad t, s, r \in \mathbb{R}$

(D) $x_1 = t,\ x_2 = -5t,\ x_3 = 0,\ x_4 = 0 \quad t \in \mathbb{R}$

(E) $x_1 = -5t,\ x_2 = t,\ x_3 = 0,\ x_4 = 0 \quad t \in \mathbb{R}$

(A) ○
(B) ○
(C) ○
(D) ○
(E) ●

Suppose $A = \begin{bmatrix} 1 & 6 & 5 \\ -1 & -5 & -3 \\ 0 & 7 & 14 \end{bmatrix}$, $x = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$ and $b = \begin{bmatrix} b_1 \\ b_2 \\ b_3 \end{bmatrix}$.

The condition(s) on b_1, b_2 and b_3 so that the system $Ax = b$ is consistent is(are)

(A) $b_3 = 7b_1 + 7b_2$, $b_1 + b_2 = 0$ and $b_1 = 0$

(B) $b_3 = -7b_1 + -7b_2$

(C) The system is consistent for any b_1, b_2 and b_3

(D) $b_2 = 7b_1 + 7b_3$

(E) $b_2 = 7b_1 + 7b_3$ and $b_1 + b_3 = 0$

One of the following matrices is in row echelon form but is *not* in reduced row echelon form

(A) $\begin{bmatrix} 1 & 0 & 4 & 1 & 0 \\ 0 & 1 & 1 & 2 & 0 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$

(B) $\begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 0 & 5 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$

(C) $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}$

(D) $\begin{bmatrix} 1 & 4 & 1 & 0 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$

(E) $\begin{bmatrix} 1 & 0 & 2 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$

(A) ○
(B) ●
(C) ○
(D) ○
(E) ○

Show all ×

Consider the following system of equations

$$\begin{aligned} x + y + \quad & z = 3 \\ y - \quad & z = 2 \\ (k^2 - 9)z &= (k + 3) \end{aligned}$$

This system is inconsistent if

(A) $k = -3$ (B) $k = 3$ (C) $k = -3$ or $k = 3$

(D) $k \neq 3$ (E) $k \neq -3$ or $k \neq 3$

$$x + y + \quad z = 3$$
$$y - \quad z = 2$$
$$(k^2 - 9)z = (k + 3)$$

This system is inconsistent if

(A) $k = -3$ (B) $k = 3$ (C) $k = -3$ or $k = 3$

(D) $k \neq 3$ (E) $k \neq -3$ or $k \neq 3$

- (A)
- (B)
- (C)
- (D)
- (E)

6

Question

أوافق

5

Question
(2 Points)

Consider the following system of equations

$$\begin{aligned} x + y + \quad & z = 3 \\ y - \quad & z = 2 \\ (k^2 - 9)z &= (k + 3) \end{aligned}$$

This system is inconsistent if

(A) $k = -3$ (B) $k = 3$ (C) $k = -3$ or $k = 3$

(D) $k \neq 3$ (E) $k \neq -3$ or $k \neq 3$

(A)

(B)

(C)

(D)

(E)

One of the following matrices is in row echelon form but is not in reduced row echelon form

(A) $\begin{bmatrix} 1 & 0 & 4 & 1 & 0 \\ 0 & 1 & 1 & 2 & 0 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$ (B) $\begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 0 & 5 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$ (C) $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}$

(D) $\begin{bmatrix} 1 & 4 & 1 & 0 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$ (E) $\begin{bmatrix} 1 & 0 & 2 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$

(E)

11

Question
(1 Point)

If A is a 5×2 matrix and B is a 5×3 matrix, then

(A) $(B^T A)$ is a 3×5 matrix

(B) $(B^T A)$ is a 5×3 matrix

(C) $(B^T A)$ is a 3×2 matrix

(D) $(B^T A)$ is a 5×5 matrix

(E) $(B^T A)$ is undefined

(A)

(B)

(C)

(D)

(E)

If A is a square matrix with $A^2 + 12A - 2I = 0$, then

(A) A is invertible with $A^{-1} = 2A + 24I$

(B) A is invertible with $A^{-1} = -12A + 2I$

(C) A is invertible with $A^{-1} = A + 12I$

(D) A is invertible with $A^{-1} = \frac{1}{2}A + 6I$

(E) A is not invertible

Suppose $A = \begin{bmatrix} 27 & 3 & -5 & -35 \\ 1 & 0 & 0 & -1 \\ 18 & 2 & -3 & -23 \\ 44 & 5 & -8 & -56 \end{bmatrix}$ and $A^{-1} = \begin{bmatrix} -1 & 2 & -1 & 1 \\ -4 & -8 & 4 & 1 \\ -1 & -1 & 4 & -1 \\ -1 & 1 & -1 & 1 \end{bmatrix}$

Consider the system $Ax = b$ where $x = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix}$ and $b = \begin{bmatrix} 0 \\ 1 \\ -1 \\ 0 \end{bmatrix}$

Then $x_1 =$

(A) 3 (B) 8 (C) 0 (D) 1 (E) -1