

9/19/2023: Review/Question Session

Questions from either WebWork or the practice test.

#13

$$\begin{bmatrix} 1 & 3 & c \\ 0 & 3 & -6 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\begin{bmatrix} \textcircled{1} & 3 & \textcircled{c} & 1 & 0 & 0 \\ 0 & \textcircled{3} & -6 & 0 & 1 & 0 \\ 0 & 0 & \textcircled{1} & 0 & 0 & 1 \end{bmatrix}$$

$-c \xrightarrow{=6} -6$

$$6R_3 + R_2 \rightarrow R_2$$

$$-cR_3 + R_1 \rightarrow R_1$$

$$\begin{bmatrix} 1 & 3 & 0 & 1 & 0 & -c \\ 0 & 3 & 0 & 0 & 1 & 6 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{bmatrix}$$

-3

$$\begin{pmatrix} * \\ * \\ * \end{pmatrix}$$

$$-1 \cdot R_2 + R_1 \rightarrow R_1$$

$$\begin{bmatrix} 1 & 0 & 0 & 1 & -1 & -c-6 \\ 0 & 3 & 0 & 0 & 1 & 6 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{bmatrix}$$

$$\frac{1}{3} R_2 \rightarrow R_2$$

$$\begin{bmatrix} 1 & 0 & 0 & 1 & -1 & -c-6 \\ 0 & 1 & 0 & 0 & \frac{1}{3} & 2 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{bmatrix}$$

Quiz 1. D

2. C

#4. $\begin{pmatrix} E \\ \hline \end{pmatrix} \quad -6R_2 + R_4 \rightarrow R_4$

$$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \xrightarrow{\quad} \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & -6 & 0 & 1 \end{bmatrix}$$

#10. $\begin{bmatrix} 1 & 2 & 3 \\ -1 & 1 & 1 \\ 1 & 1 & 0 \end{bmatrix} \xrightarrow{(r_1)} \begin{bmatrix} -1 & 4 & 5 \\ -1 & 1 & 1 \\ 1 & 1 & 0 \end{bmatrix} \xrightarrow{(r_2)} \begin{bmatrix} -1 & 4 & 5 \\ 1 & 1 & 0 \\ -1 & 1 & 1 \end{bmatrix}$

$r_1: \underline{2R_2 + R_1 \rightarrow R_1} \Rightarrow \underline{E_1} =$

$R_2 \leftrightarrow R_3 \Rightarrow E_2 = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}$

$\underline{2R_2 + R_1 \rightarrow R_1}$

$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad E_1 = \begin{bmatrix} 1 & 2 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \xrightarrow{R_2 \leftrightarrow R_3} \begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix} = E_2$

$E_1 E_2 =$