

Let

$$\mathbf{A} = \begin{bmatrix} 4 & 10 \\ -1 & \pi \end{bmatrix}, \mathbf{B} = \begin{bmatrix} 2 & 8 \\ \sqrt{2} & \sin 1 \end{bmatrix}, \mathbf{C} = \begin{bmatrix} 2 & 0 \\ 1 & 6 \end{bmatrix}, \mathbf{D} = \begin{bmatrix} 1 & 2 & 3 \\ -5 & -9 & 0 \end{bmatrix}, \mathbf{E} = \begin{bmatrix} -3 & -4 \\ -9 & 16 \\ 2\pi & 3 \end{bmatrix}$$

,

$$\mathbf{v}_1 = \begin{bmatrix} 1 \\ -1 \end{bmatrix}, \mathbf{v}_2 = \begin{bmatrix} 100 \\ -1 \end{bmatrix}, \mathbf{v}_3 = \begin{bmatrix} 1016 \\ -4 \end{bmatrix}$$

1. Write down row-echelon forms and reduced row-echelon forms of \mathbf{A} , \mathbf{B} , \mathbf{C} , \mathbf{D} , \mathbf{E} , respectively.

Solve the following linear system of equations, using inverse matrix method.

2.

$$\begin{aligned} 4x + 10y &= 1 \\ -x + \pi y &= -1 \end{aligned}$$

3.

$$\begin{aligned} 2x + 8y &= 100 \\ \sqrt{2}x + (\sin 1)y &= -1 \end{aligned}$$

4.

$$\begin{aligned} 2x &= 1016 \\ x + 6y &= -4 \end{aligned}$$