

Var. 1 (131121)*Adeel*

- Find the Jordan form and a Jordan basis of the matrix $\begin{pmatrix} 0 & -2 & 1 \\ 3 & 5 & -1 \\ -3 & -2 & 4 \end{pmatrix}$
- Find the Jordan form and a Jordan basis of the nilpotent matrix $\begin{pmatrix} -3 & 2 & -2 & -1 & -1 \\ -9 & 4 & -7 & -6 & -4 \\ -9 & 2 & -8 & -9 & -5 \\ 9 & -4 & 7 & 6 & 4 \\ 0 & 2 & 1 & 3 & 1 \end{pmatrix}$

Var. 2 (131121)*Ali Ovais*

- Find the Jordan form and a Jordan basis of the matrix $\begin{pmatrix} 5 & -2 & 1 \\ 4 & -1 & 2 \\ 4 & -4 & 5 \end{pmatrix}$
- Find the Jordan form and a Jordan basis of the nilpotent matrix $\begin{pmatrix} -4 & 3 & -1 & 3 & -1 \\ -6 & 4 & -1 & 4 & -1 \\ -8 & 6 & -2 & 6 & -2 \\ 0 & -2 & 2 & -2 & 1 \\ 4 & -8 & 6 & -8 & 4 \end{pmatrix}$

Var. 3 (131121)*Faraha*

- Find the Jordan form and a Jordan basis of the matrix $\begin{pmatrix} 0 & 1 & 1 \\ -3 & -4 & -3 \\ 2 & 2 & 1 \end{pmatrix}$
- Find the Jordan form and a Jordan basis of the nilpotent matrix $\begin{pmatrix} -4 & 3 & 1 & 3 & -1 \\ -5 & 4 & 2 & 4 & -1 \\ -2 & 2 & 0 & 2 & -1 \\ 3 & -3 & -1 & -3 & 1 \\ 8 & -7 & -1 & -7 & 3 \end{pmatrix}$

Var. 4 (131121)*Kamran*

- Find the Jordan form and a Jordan basis of the matrix $\begin{pmatrix} 4 & 1 & 1 \\ 2 & 5 & 2 \\ -5 & -2 & 0 \end{pmatrix}$
- Find the Jordan form and a Jordan basis of the nilpotent matrix $\begin{pmatrix} 4 & -3 & -1 & 1 & 0 \\ 9 & -7 & -3 & 3 & -1 \\ -5 & 4 & 2 & -2 & 1 \\ 6 & -5 & -3 & 3 & -2 \\ 6 & -5 & -3 & 3 & -2 \end{pmatrix}$

Var. 5 (131121)*Ahsan Khan*

- Find the Jordan form and a Jordan basis of the matrix $\begin{pmatrix} 0 & 1 & 1 \\ -6 & 5 & 2 \\ 5 & -3 & 0 \end{pmatrix}$
- Find the Jordan form and a Jordan basis of the nilpotent matrix $\begin{pmatrix} -6 & 5 & -3 & 4 & 3 \\ -7 & 6 & -4 & 5 & 4 \\ -9 & 8 & -6 & 7 & 6 \\ 0 & -2 & 2 & 0 & -1 \\ -8 & 9 & -7 & 6 & 6 \end{pmatrix}$

Var. 6 (131121)*Yameen*

- Find the Jordan form and a Jordan basis of the matrix $\begin{pmatrix} -9 & 6 & -5 \\ -4 & 0 & -4 \\ -3 & 2 & -7 \end{pmatrix}$
- Find the Jordan form and a Jordan basis of the nilpotent matrix $\begin{pmatrix} 3 & -3 & -2 & -1 & -1 \\ -6 & 6 & 4 & 2 & 2 \\ 8 & -5 & -4 & -2 & -2 \\ 7 & -10 & -6 & -3 & -3 \\ 4 & -7 & -4 & -2 & -2 \end{pmatrix}$

Var. 7 (131121)*Nehad*

- Find the Jordan form and a Jordan basis of the matrix $\begin{pmatrix} 7 & 5 & 1 \\ -6 & -4 & -1 \\ -6 & -5 & 0 \end{pmatrix}$
- Find the Jordan form and a Jordan basis of the nilpotent matrix $\begin{pmatrix} 1 & 0 & 2 & -1 & -1 \\ 4 & -1 & 3 & -1 & -1 \\ 3 & -3 & -5 & 4 & 3 \\ 7 & -4 & -2 & 3 & 2 \\ -2 & 0 & -4 & 2 & 2 \end{pmatrix}$

Var. 8 (131121)*Shamas*

- Find the Jordan form and a Jordan basis of the matrix $\begin{pmatrix} 3 & 4 & -4 \\ 1 & 4 & -1 \\ 1 & 5 & -2 \end{pmatrix}$
- Find the Jordan form and a Jordan basis of the nilpotent matrix $\begin{pmatrix} 2 & 1 & -1 & 1 & 0 \\ -4 & -2 & 2 & -2 & 0 \\ -1 & -3 & 3 & -1 & 1 \\ -1 & -3 & 3 & -1 & 1 \\ -8 & 1 & -1 & -3 & -2 \end{pmatrix}$

Var. 9 (131121)

Umar

1. Find the Jordan form and a Jordan basis of the matrix

$$\begin{pmatrix} 3 & 1 & 1 \\ 2 & 2 & 1 \\ -6 & -3 & -2 \end{pmatrix}$$

2. Find the Jordan form and a Jordan basis of the

nilpotent matrix $\begin{pmatrix} 6 & 4 & 4 & 6 & 5 \\ 6 & 4 & 4 & 6 & 5 \\ -3 & -5 & -3 & -5 & -4 \\ -1 & -5 & -2 & -4 & -3 \\ -8 & 2 & -3 & -3 & -3 \end{pmatrix}$

Var. 10 (131121)

Yasir

1. Find the Jordan form and a Jordan basis of the matrix

$$\begin{pmatrix} -5 & -4 & 1 \\ -1 & -2 & -1 \\ 1 & 5 & -5 \end{pmatrix}$$

2. Find the Jordan form and a Jordan basis of the

nilpotent matrix $\begin{pmatrix} 4 & 5 & -1 & -2 & -1 \\ -5 & -7 & 2 & 3 & 1 \\ -7 & -9 & 1 & 3 & 3 \\ 1 & 0 & 2 & 1 & -2 \\ -5 & -7 & 2 & 3 & 1 \end{pmatrix}$

Var. 11 (131121)

Zunaira

1. Find the Jordan form and a Jordan basis of the matrix

$$\begin{pmatrix} 1 & 6 & 3 \\ 1 & 5 & 2 \\ -2 & -2 & 0 \end{pmatrix}$$

2. Find the Jordan form and a Jordan basis of the

nilpotent matrix $\begin{pmatrix} -1 & -3 & -1 & 4 & 2 \\ 2 & 6 & 2 & -8 & -4 \\ -3 & 0 & 1 & -1 & -1 \\ 4 & 6 & 2 & -5 & -3 \\ -6 & -2 & 0 & -3 & -1 \end{pmatrix}$

Var. 12 (131121)

1. Find the Jordan form and a Jordan basis of the matrix

$$\begin{pmatrix} -1 & -3 & 3 \\ 1 & 3 & -4 \\ 1 & 5 & -6 \end{pmatrix}$$

2. Find the Jordan form and a Jordan basis of the

nilpotent matrix $\begin{pmatrix} 2 & -1 & 1 & -1 & 1 \\ 3 & -1 & 2 & -1 & 2 \\ -3 & 2 & -1 & 2 & -1 \\ 4 & -2 & 1 & -1 & 0 \\ 6 & -3 & 2 & -2 & 1 \end{pmatrix}$