```
> with(LinearAlgebra):
> A:=<2,-3,1|3,2,1|0,0,4>^+;
```

$$A := \begin{bmatrix} 2 & -3 & 1 \\ 3 & 2 & 1 \\ 0 & 0 & 4 \end{bmatrix} \tag{1}$$

```
> evs,P1:=Eigenvectors(A);
```

$$evs, P1 := \begin{bmatrix} 2+3\,I \\ 2-3\,I \\ 4 \end{bmatrix}, \begin{bmatrix} I & -I & -\frac{1}{13} \\ 1 & 1 & \frac{5}{13} \\ 0 & 0 & 1 \end{bmatrix} \tag{2}$$

```
> ReducedRowEchelonForm(A-(2+3*I)*IdentityMatrix(3));
```

$$\begin{bmatrix} 1 & -I & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix} \tag{3}$$

```
> ReducedRowEchelonForm(A-4*IdentityMatrix(3));
```

$$\begin{bmatrix} 1 & 0 & \frac{1}{13} \\ 0 & 1 & -\frac{5}{13} \\ 0 & 0 & 0 \end{bmatrix} \tag{4}$$

```
> # maple supplies complex eigenvectors
  # Burst these vectors to find change of var matrix P
> P2:=<Column(P1,1)|Column(P1,2)|Column(P1,3)>; # same as P1
```

$$P2 := \begin{bmatrix} I & -I & -\frac{1}{13} \\ 1 & 1 & \frac{5}{13} \\ 0 & 0 & 1 \end{bmatrix} \tag{5}$$

```
> P:=<Re(Column(P1,1))|Im(Column(P1,1))|Column(P1,3)>;
```

$$P := \begin{bmatrix} 0 & 1 & -\frac{1}{13} \\ 1 & 0 & \frac{5}{13} \\ 0 & 0 & 1 \end{bmatrix} \tag{6}$$

```
> DD:=<2,3,0|-3,2,0|0,0,4>^+;
```

(7)

$$DD := \begin{bmatrix} 2 & 3 & 0 \\ -3 & 2 & 0 \\ 0 & 0 & 4 \end{bmatrix} \quad (7)$$

```
> A.P-P.DD;
```

$$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix} \quad (8)$$