```
> restart
> with(LinearAlgebra):
```

1. cela

```
> A := Matrix([[6, 0, -3], [-4, 1, 2], [1, 4, 1]])
```

$$A := \begin{bmatrix} 6 & 0 & -3 \\ -4 & 1 & 2 \\ 1 & 4 & 1 \end{bmatrix} \quad (1)$$

```
> Determinant(A)
```

$$9 \quad (2)$$

```
> Transpose(A)
```

$$\begin{bmatrix} 6 & -4 & 1 \\ 0 & 1 & 4 \\ -3 & 2 & 1 \end{bmatrix} \quad (3)$$

```
> MatrixInverse(A)
```

$$\begin{bmatrix} -\frac{7}{9} & -\frac{4}{3} & \frac{1}{3} \\ \frac{2}{3} & 1 & 0 \\ -\frac{17}{9} & -\frac{8}{3} & \frac{2}{3} \end{bmatrix} \quad (4)$$

```
> X := (MatrixInverse(A)-Transpose(A)).Transpose(A)
```

$$X := \begin{bmatrix} -\frac{116}{3} & \frac{256}{9} & \frac{29}{9} \\ 16 & -\frac{32}{3} & -\frac{10}{3} \\ \frac{23}{3} & -\frac{88}{9} & -\frac{161}{9} \end{bmatrix} \quad (5)$$

```
> GaussianElimination(A)
```

$$\begin{bmatrix} 6 & 0 & -3 \\ 0 & 1 & 0 \\ 0 & 0 & \frac{3}{2} \end{bmatrix} \quad (6)$$

```
> LinearSolve(A, <0, 0, 0>)
```

(7)

$$\begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix} \quad (7)$$

5. cela

```
> Eigenvectors(<<1,2>|<-3,-4>>)
```

$$\begin{bmatrix} -2 \\ -1 \end{bmatrix}, \begin{bmatrix} 1 & \frac{3}{2} \\ 1 & 1 \end{bmatrix} \quad (8)$$

6. zkusit

```
> u := <0, -3, -1>
```

$$u := \begin{bmatrix} 0 \\ -3 \\ -1 \end{bmatrix} \quad (9)$$

```
> v := <-1, 0, -2>
```

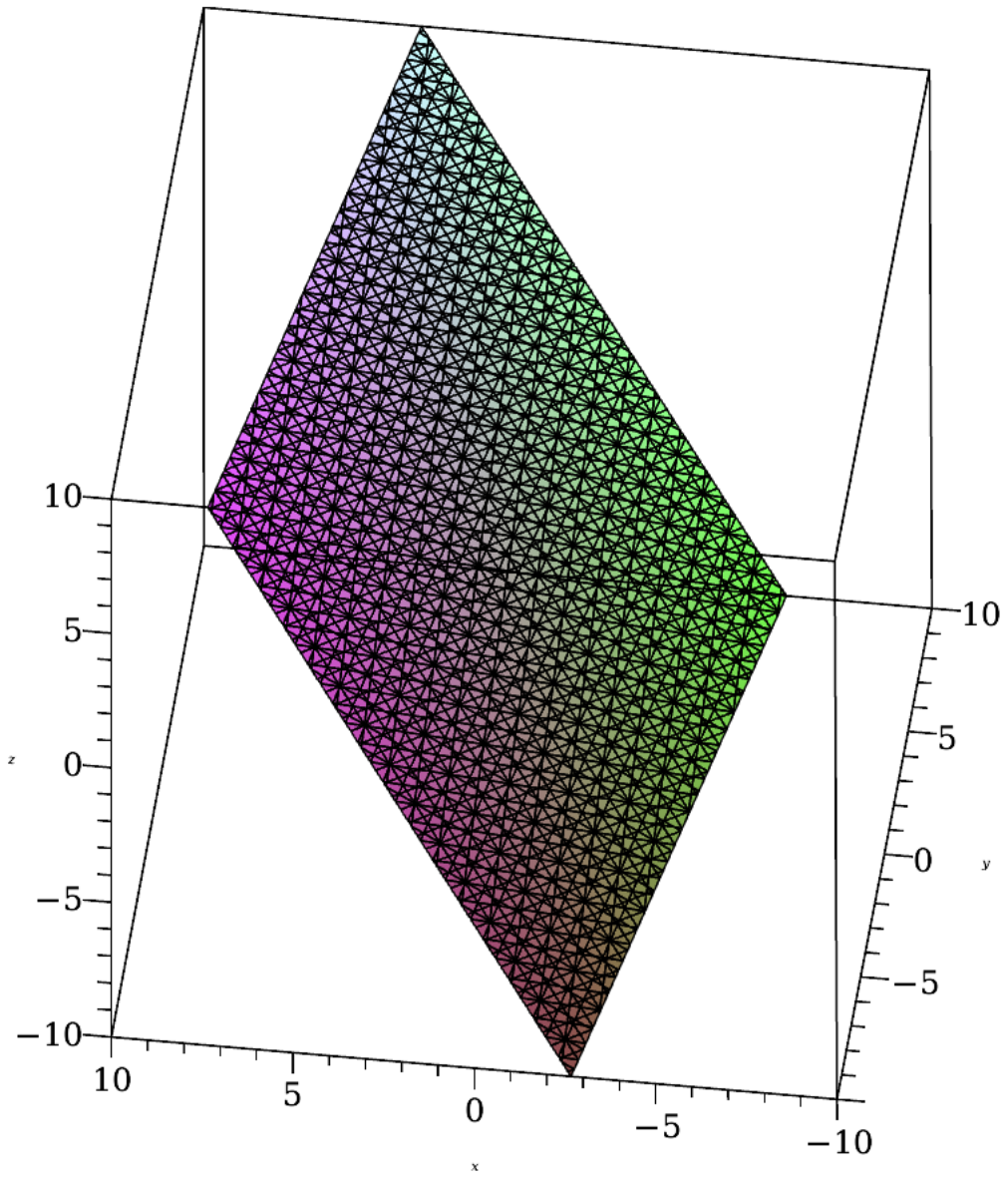
$$v := \begin{bmatrix} -1 \\ 0 \\ -2 \end{bmatrix} \quad (10)$$

```
> n := u &x v
```

$$n := \begin{bmatrix} 6 \\ 1 \\ -3 \end{bmatrix} \quad (11)$$

rovnice roviny: 6x + y - 3z -4 = 0

```
> plots[implicitplot3d](6*x + y - 3*z - 4, x=-10..10, y=-10..10, z=
  -10..10)
```


10
5
0
−5
−10
z
10
5
0
−5
−10
x
10
5
0
−5
−10
y