

```

>
>
> with(LinearAlgebra):
  A := <<1,1,2,0>|<0,0,0,0>|<-1,0,-1,-1>|<3,2,5,1>|<-1,-1,-1,0>>;
      A:=
      
$$\begin{bmatrix} 1 & 0 & -1 & 3 & -1 \\ 1 & 0 & 0 & 2 & -1 \\ 2 & 0 & -1 & 5 & -1 \\ 0 & 0 & -1 & 1 & 0 \end{bmatrix}$$

      (1)

```

```

> GaussianElimination(A);
      
$$\begin{bmatrix} 1 & 0 & -1 & 3 & -1 \\ 0 & 0 & 1 & -1 & 0 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

      (2)

```

```

> RowSpace(A);
      
$$[[1 \ 0 \ 0 \ 2 \ 0], [0 \ 0 \ 1 \ -1 \ 0], [0 \ 0 \ 0 \ 0 \ 1]]$$

      (3)

```

```

> ColumnSpace(A);
      
$$\left\{ \begin{bmatrix} 1 \\ 0 \\ 0 \\ 1 \end{bmatrix}, \begin{bmatrix} 0 \\ 1 \\ 0 \\ -1 \end{bmatrix}, \begin{bmatrix} 0 \\ 0 \\ 1 \\ 0 \end{bmatrix} \right\}$$

      (4)

```

```

> NullSpace(A);
      
$$\left\{ \begin{bmatrix} -2 \\ 0 \\ 1 \\ 1 \\ 0 \end{bmatrix}, \begin{bmatrix} 0 \\ 1 \\ 0 \\ 0 \\ 0 \end{bmatrix} \right\}$$

      (5)

```

```

> NullSpace(Transpose(A));
      
$$\left\{ \begin{bmatrix} -1 \\ 1 \\ 0 \\ 1 \end{bmatrix} \right\}$$

      (6)

```