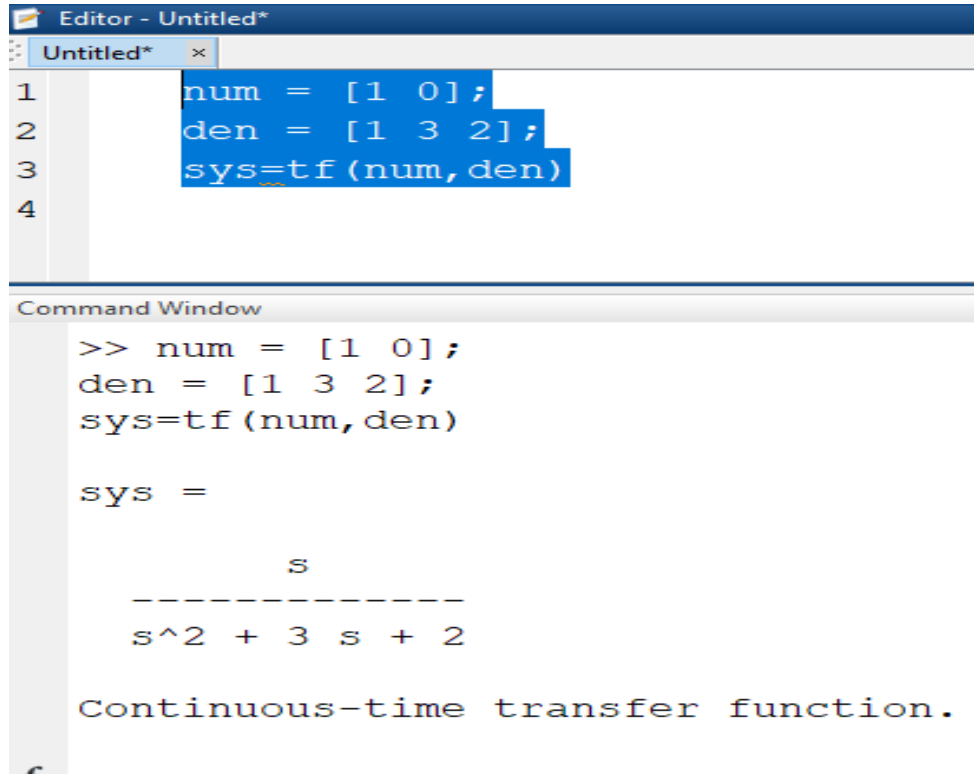


BASIC COMMONDS IN MATLAB

tf: Create tf objects representing continuous-time or discrete-time transfer functions in polynomial form.



```
Editor - Untitled*
Untitled* x
1 num = [1 0];
2 den = [1 3 2];
3 sys=tf(num,den)
4

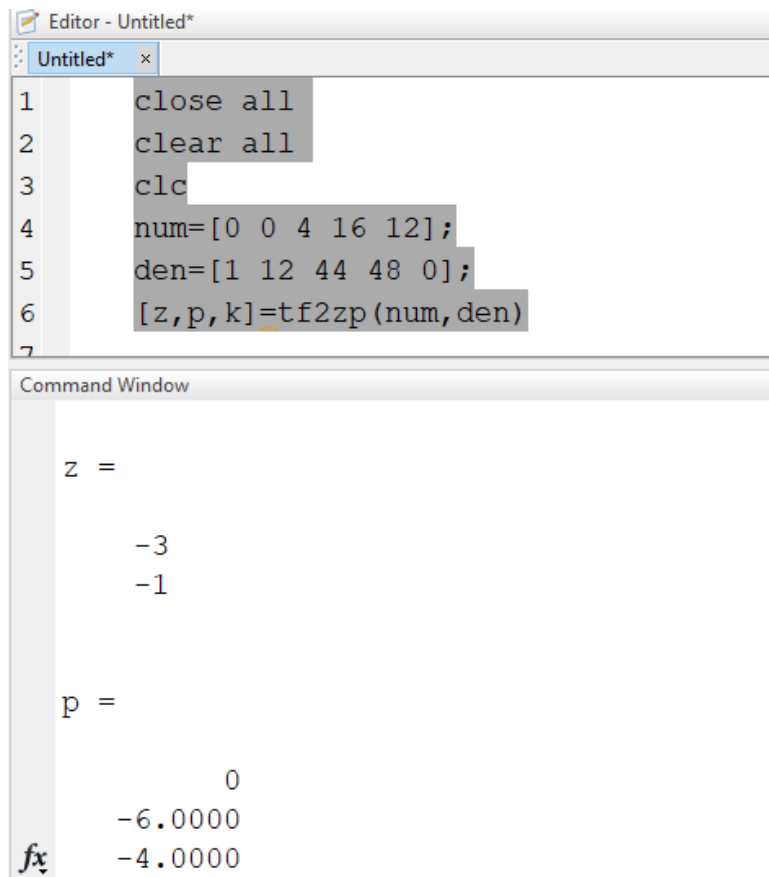
Command Window
>> num = [1 0];
den = [1 3 2];
sys=tf(num,den)

sys =

          s
-----
s^2 + 3 s + 2

Continuous-time transfer function.
```

zpk: representing continuous-time or discrete-time transfer functions in zero-pole-gain (factorized) form



```
Editor - Untitled*
Untitled* x
1 close all
2 clear all
3 clc
4 num=[0 0 4 16 12];
5 den=[1 12 44 48 0];
6 [z,p,k]=tf2zp(num,den)
7

Command Window

z =

    -3
    -1

p =

     0
 -6.0000
 -4.0000
fx
```

Residue: Convert between partial fraction expansion and polynomial coefficients.

```
Editor - Untitled*
Untitled* x
1 clear all
2 close all
3 clc
4 num=[1 2];
5 den=[1 4 3 0];
6 [r p k]=residue (num,den)
7

Command Window

p =

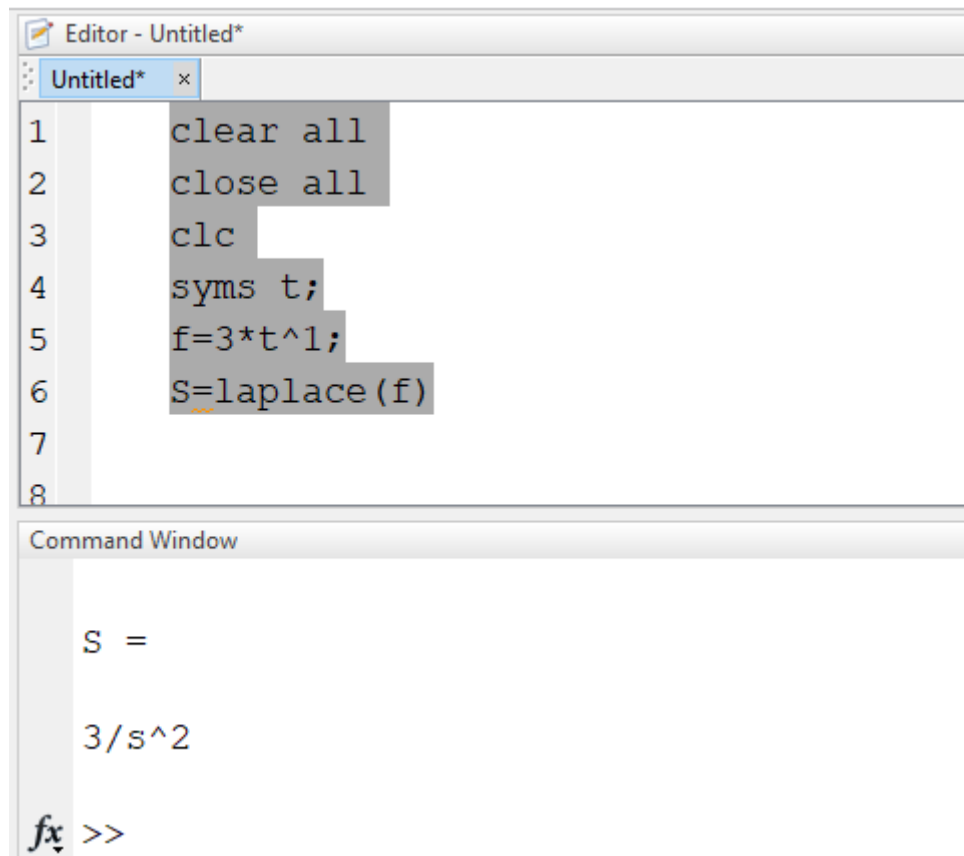
    -3
    -1
     0

k =

     []

fx >>
```

Laplace: returns the Laplace Transform of f . By default, the independent variable is t and the transformation variable is s .



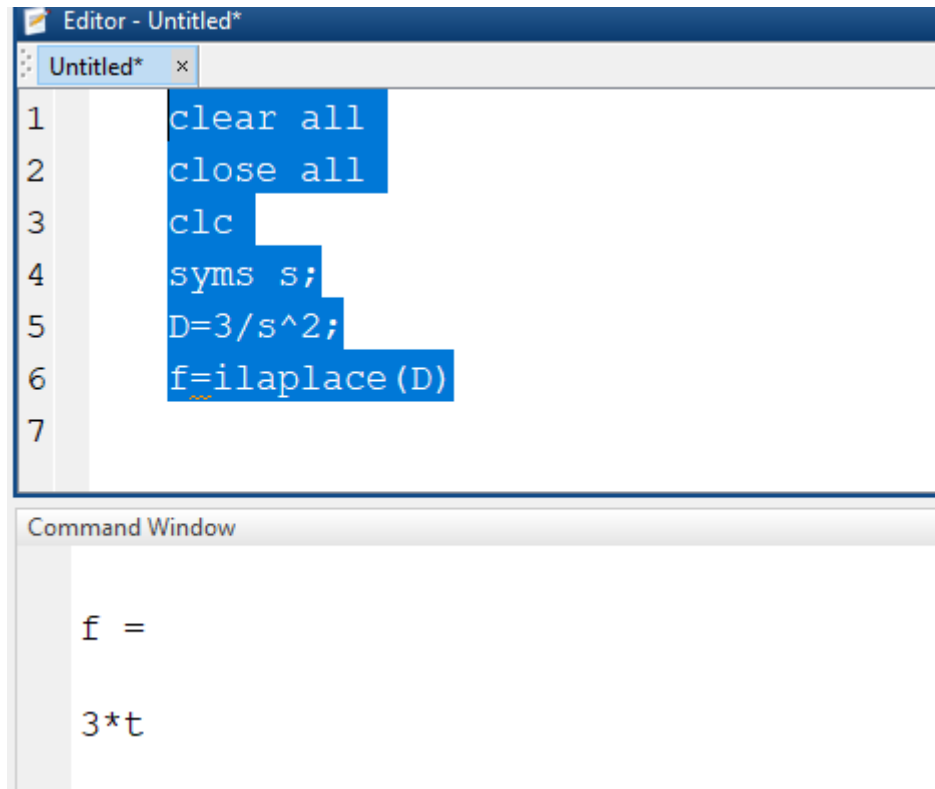
The image shows a MATLAB interface with an editor window and a command window. The editor window contains the following code:

```
1 clear all
2 close all
3 clc
4 syms t;
5 f=3*t^1;
6 S=laplace(f)
7
8
```

The command window shows the output of the code:

```
S =
3/s^2
fx >>
```

ilaplace : returns the Inverse Laplace Transform of F. By default, the independent variable is s and the transformation variable is t.



```
Editor - Untitled*
Untitled* x
1 clear all
2 close all
3 clc
4 syms s;
5 D=3/s^2;
6 f=ilaplace(D)
7

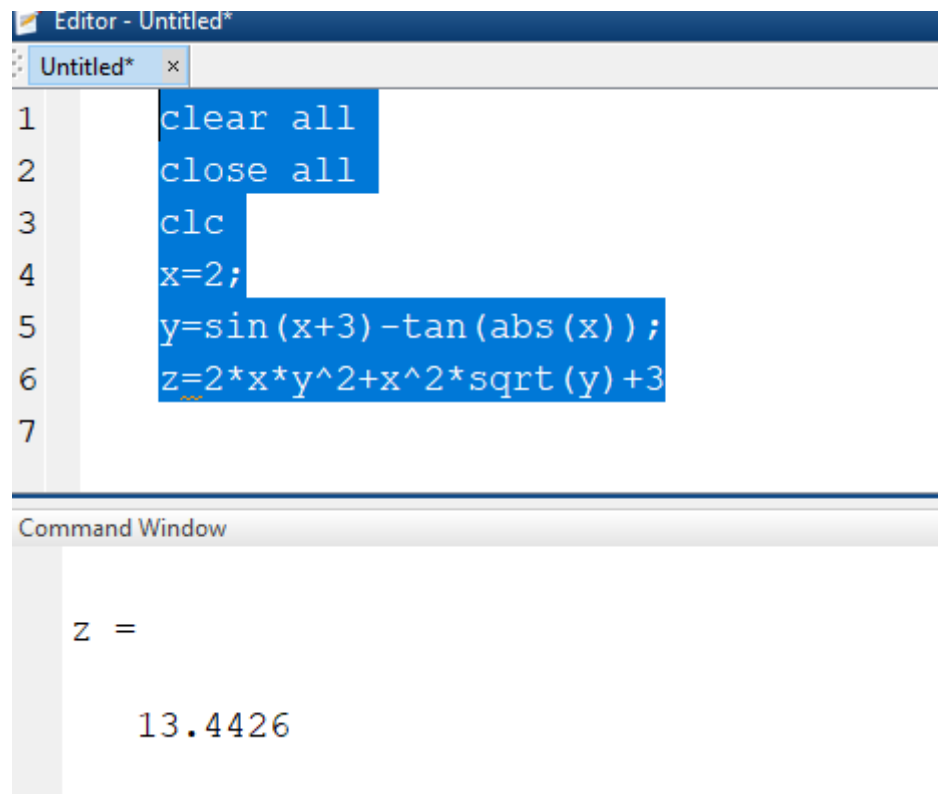
Command Window

f =

3*t
```

sqrt: returns the square root of each element.

Abs: Absolute value and complex magnitude.



```
Editor - Untitled*
Untitled* x
1 clear all
2 close all
3 clc
4 x=2;
5 y=sin(x+3)-tan(abs(x));
6 z=2*x*y^2+x^2*sqrt(y)+3
7

Command Window

z =

    13.4426
```