

MATLAB Programming for Engineers | (5th Edition)

Step-by-step solution



Step 1 of 1

7205-5-17E AID: 1825 | 31/10/2013

Type help factorial in MATLAB command window to know about the command factorial. The output is shown in Figure 1.

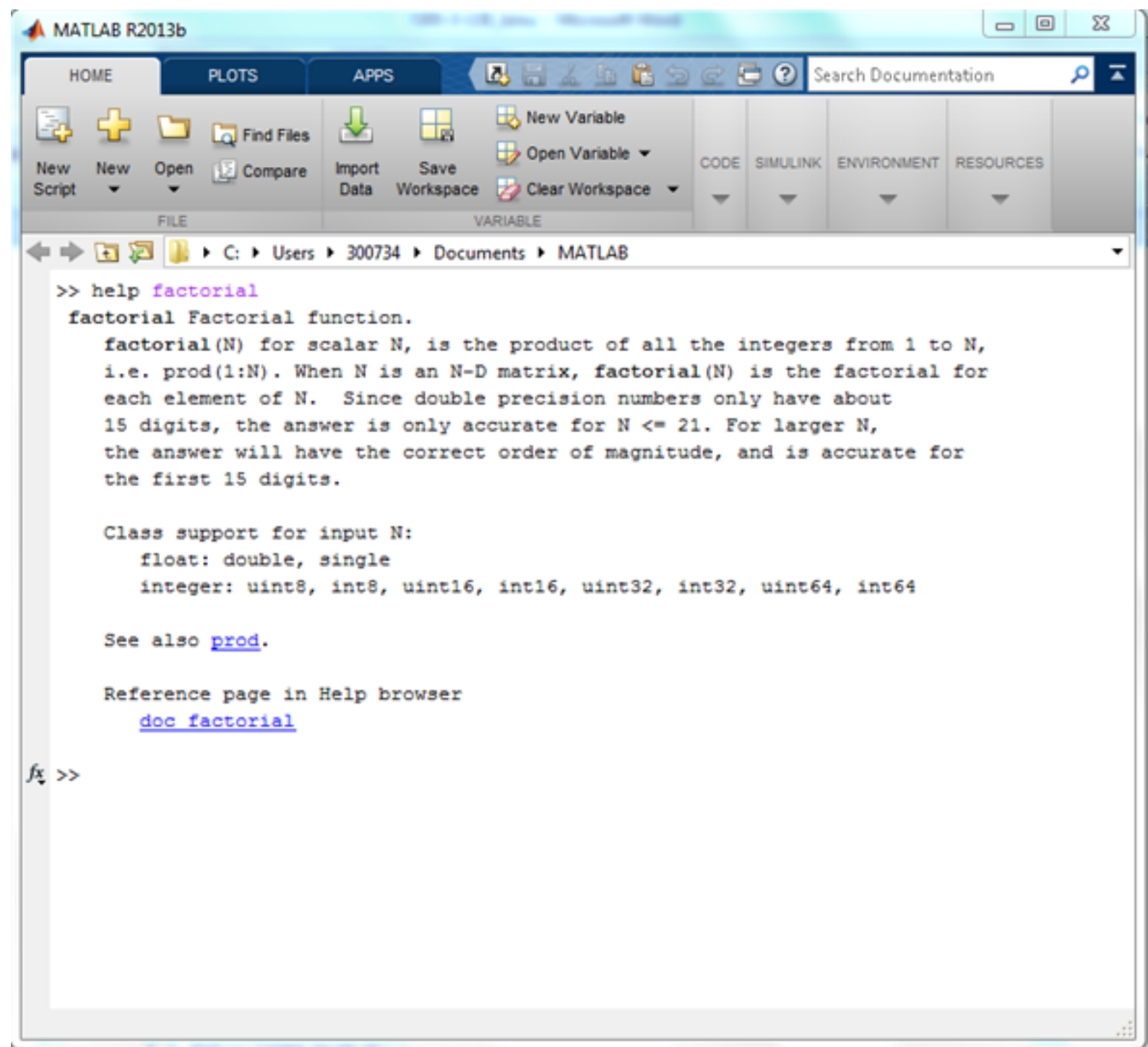


Figure 1: factorial help window.

From Figure 1, the factorial function, factorial(N), is the product of all the integers from 1 to N.

Use the factorial program to calculate the factorial of a function.

Type the following MATLAB code to calculate the function $n!$ for various values of n .

```
n=input(' enter N:');
n_factorial=1;
for ii=1:n
    n_factorial=n_factorial*ii;
end
disp ([ num2str(n),'!','=',num2str(n_factorial) ]);
```

The output for the MATLAB code after execution is,

```
>> Factorial
```

Enter N: 5

Type the value of N as 5 and press enter.

The output is,

```
5! =120
```

Execute the MATLAB code again; the output is,

```
>> Factorial
```

Enter N: 10

Type the value of N as 10 and press enter.

The output is,

```
10! =3628800
```

Execute the MATLAB code again, the output is,

```
>> Factorial
```

Enter N: 15

Type the value of N as 15 and press enter.

The output is,

```
15! =1307674368000
```

Use the factorial function to calculate the factorial.

Type the following MATLAB code to calculate the function $5!$.

```
>> factorial(5)
```

The output for the MATLAB code after execution is,

```
ans =
```

```
120
```

Type the following MATLAB code to calculate the function $10!$.

```
>> factorial(10)
```

The output for the MATLAB code after execution is,

```
ans =
```

```
3628800
```

Type the following MATLAB code to calculate the function $15!$.

```
>> factorial(15)
```

The output for the MATLAB code after execution is,

```
ans =
```

```
1.3077e+12
```

Thus, factorial function is written and executed using the factorial program and factorial function.

The results of the factorial function are same in both factorial program and factorial function.

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Was this solution helpful?



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Recommended solutions for you in Chapter 5

Chapter 5, Solution 12E

The following is the given MATLAB program ball:
conv=pi/180; g=-9.81; vo=20; range=zeros(1,91);
for ii=1:91 theta=ii-1; vxo=vo*cos(theta*conv);
vyo=vo*sin(theta*conv); max_time=-2*vyo/g;
range(ii)=vxo*max_time; end fprintf('Range...

[See solution](#)

Chapter 5, Solution 20E

The MATLAB functions produce a scalar output for one or more scalar inputs. The given Fourier series function is,

[See solution](#)

$$f(x) = \sum_{i=1,3,5,\dots}^n \frac{1}{n} \sin\left(\frac{n\pi x}{L}\right)$$

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