
Command Window in the MATLAB Tutorial

To get started, select MATLAB Help or Demos from the Help menu.

```
>> syms x
>> x ) 0
??? x } 0
      |
Error: Unbalanced or misused parentheses or brackets.

>> x = 0

x =

    0

>> doc
>> x = 3 + 2*i

x =

    3.0000 + 2.0000i

>> x = 3 + 2*j

x =

    3.0000 + 2.0000i

>> 'sadsf'

ans =

sadsf

>> ['asd' 'asdaf']

ans =

asdasdaf

>> v = [1 1 342 -1 3+23*j]

v =

    1.0e+002 *
Columns 1 through 4
    0.0100    0.0100    3.4200   -0.0100
Column 5
    0.0300 + 0.2300i

>> [2 3 5; 2 3 4]

ans =

     2     3     5
     2     3     4

>> c = cell(2,3)

c =

    []    []    []
    []    []    []

>> c{2,2} = 'sdfsd'

c =

    []    []    []
    []    'sdfsd'  []

>> c{2,3} = v
```

```
c =  
    []      'sdfsdf'      [1x5 double]  
>> help sin  
SIN      Sine.  
        SIN(X) is the sine of the elements of X.  
  
        See also asin, sind.  
  
        Overloaded functions or methods (ones with the same name in other directories)  
        help sym/sin.m  
  
        Reference page in Help browser  
        doc sin  
  
>> doc sin  
>> clear x  
>> 1 & 0  
ans =  
    0  
>> (3 > pi)  
ans =  
    0  
>> (3 < pi)  
ans =  
    1  
>> x = 2 + 5*i  
x =  
    2.0000 + 5.0000i  
>> x'  
ans =  
    2.0000 - 5.0000i  
>> v = [2 3 54]  
v =  
     2     3    54  
>> v = linspace(0, 1, 100)  
v =  
Columns 1 through 7  
     0    0.0101    0.0202    0.0303    0.0404    0.0505    0.0606  
Columns 8 through 14  
    0.0707    0.0808    0.0909    0.1010    0.1111    0.1212    0.1313  
Columns 15 through 21  
    0.1414    0.1515    0.1616    0.1717    0.1818    0.1919    0.2020  
Columns 22 through 28  
    0.2121    0.2222    0.2323    0.2424    0.2525    0.2626    0.2727  
Columns 29 through 35  
    0.2828    0.2929    0.3030    0.3131    0.3232    0.3333    0.3434  
Columns 36 through 42
```

```
    0.3535    0.3636    0.3737    0.3838    0.3939    0.4040    0.4141
Columns 43 through 49
    0.4242    0.4343    0.4444    0.4545    0.4646    0.4747    0.4848
Columns 50 through 56
    0.4949    0.5051    0.5152    0.5253    0.5354    0.5455    0.5556
Columns 57 through 63
    0.5657    0.5758    0.5859    0.5960    0.6061    0.6162    0.6263
Columns 64 through 70
    0.6364    0.6465    0.6566    0.6667    0.6768    0.6869    0.6970
Columns 71 through 77
    0.7071    0.7172    0.7273    0.7374    0.7475    0.7576    0.7677
Columns 78 through 84
    0.7778    0.7879    0.7980    0.8081    0.8182    0.8283    0.8384
Columns 85 through 91
    0.8485    0.8586    0.8687    0.8788    0.8889    0.8990    0.9091
Columns 92 through 98
    0.9192    0.9293    0.9394    0.9495    0.9596    0.9697    0.9798
Columns 99 through 100
    0.9899    1.0000
>> v = linspace(0, 1, 100);
>> v = -1:1
v =
    -1     0     1
>> v = -1:0.15:1
v =
Columns 1 through 7
   -1.0000   -0.8500   -0.7000   -0.5500   -0.4000   -0.2500   -0.1000
Columns 8 through 14
    0.0500    0.2000    0.3500    0.5000    0.6500    0.8000    0.9500
>> doc rand
>> rand(1, 5)
ans =
    0.9501    0.2311    0.6068    0.4860    0.8913
>> v
v =
Columns 1 through 7
   -1.0000   -0.8500   -0.7000   -0.5500   -0.4000   -0.2500   -0.1000
Columns 8 through 14
    0.0500    0.2000    0.3500    0.5000    0.6500    0.8000    0.9500
>> v(3)
ans =
   -0.7000
```

```
>> v([3 5 6])
ans =
    -0.7000    -0.4000    -0.2500

>> v(3:6)
ans =
    -0.7000    -0.5500    -0.4000    -0.2500

>> length(v)
ans =
    14

>> [1 2 3; -1 -2 -3; 4 5 5]
ans =
     1     2     3
    -1    -2    -3
     4     5     5

>> [1 2 3; -1 -2 -3; 4 5, 5]
ans =
     1     2     3
    -1    -2    -3
     4     5     5

>> A = [1 2 3; -1 -2 -3; 4 5, 5]
A =
     1     2     3
    -1    -2    -3
     4     5     5

>> A(4, 3) = 4
A =
     1     2     3
    -1    -2    -3
     4     5     5
     0     0     4

>> A(8, 3) = 4
A =
     1     2     3
    -1    -2    -3
     4     5     5
     0     0     4
     0     0     0
     0     0     0
     0     0     0
     0     0     4

>> zeros(4)
ans =
     0     0     0     0
     0     0     0     0
     0     0     0     0
     0     0     0     0

>> zeros(4, 2)
ans =
     0     0
     0     0
     0     0
     0     0
```

```
>> eye(4)
```

```
ans =
```

```
    1    0    0    0
    0    1    0    0
    0    0    1    0
    0    0    0    1
```

```
>> eye(4, 7)
```

```
ans =
```

```
    1    0    0    0    0    0    0
    0    1    0    0    0    0    0
    0    0    1    0    0    0    0
    0    0    0    1    0    0    0
```

```
>> A
```

```
A =
```

```
    1    2    3
   -1   -2   -3
    4    5    5
    0    0    4
    0    0    0
    0    0    0
    0    0    0
    0    0    4
```

```
>> A(3,4)
```

```
??? Index exceeds matrix dimensions.
```

```
>> A(3,2)
```

```
ans =
```

```
    5
```

```
>> A(3,[2 3])
```

```
ans =
```

```
    5    5
```

```
>> size(A)
```

```
ans =
```

```
    8    3
```

```
>> A = magic(5)
```

```
A =
```

```
    17    24     1     8    15
    23     5     7    14    16
     4     6    13    20    22
    10    12    19    21     3
    11    18    25     2     9
```

```
>> B = magic(5)
```

```
B =
```

```
    17    24     1     8    15
    23     5     7    14    16
     4     6    13    20    22
    10    12    19    21     3
    11    18    25     2     9
```

```
>> B = rand(5, 5)
```

```
B =
```

```
    0.7621    0.6154    0.4057    0.0579    0.2028
    0.4565    0.7919    0.9355    0.3529    0.1987
    0.0185    0.9218    0.9169    0.8132    0.6038
    0.8214    0.7382    0.4103    0.0099    0.2722
    0.4447    0.1763    0.8936    0.1389    0.1988
```

```

>> A*B

ans =

    37.1712    38.9403    46.9521    12.4284    13.9798
    38.5550    37.7225    40.4691    11.1483    16.8754
    32.2394    37.8389    47.0211    16.1728    19.6704
    32.0338    49.2032    44.0005    20.8873    22.1968
    22.7072    47.1328    53.0872    28.5873    23.2359

>> A.*B

ans =

    12.9556    14.7704     0.4057     0.4631     3.0415
    10.4988     3.9597     6.5483     4.9402     3.1795
     0.0740     5.5309    11.9198    16.2633    13.2834
     8.2141     8.8585     7.7951     0.2071     0.8166
     4.8917     3.1728    22.3412     0.2778     1.7893

>> A/B

ans =

    34.5483   -29.1895    21.8317    10.4357   -11.2008
   194.3148   -76.1752    34.5618   -121.3435    19.6034
    85.1453   -69.7560    44.9943   -50.3882    25.8804
   186.2596     0.3520    15.6088   -157.0889    -7.5632
   -99.6154    18.1170    -2.2087    86.7751    16.6627

>> A./B

ans =

    1.0e+003 *

     0.0223     0.0390     0.0025     0.1382     0.0740
     0.0504     0.0063     0.0075     0.0397     0.0805
     0.2162     0.0065     0.0142     0.0246     0.0364
     0.0122     0.0163     0.0463     2.1295     0.0110
     0.0247     0.1021     0.0280     0.0144     0.0453

>> A^2

ans =

    1090     850     700     765     820
     900    1075     840     720     690
     725    1145     815    1075     900
     690     720     840     815     725
     820     765     700     850    1090

>> A.^2

ans =

    289    576     1     64    225
    529     25     49    196    256
     16     36    169    400    484
    100    144    361    441     9
    121    324    625     4    81

>> sin(A)

ans =

   -0.9614   -0.9056     0.8415     0.9894     0.6503
   -0.8462   -0.9589     0.6570     0.9906   -0.2879
   -0.7568   -0.2794     0.4202     0.9129   -0.0089
   -0.5440   -0.5366     0.1499     0.8367     0.1411
   -1.0000   -0.7510    -0.1324     0.9093     0.4121

>> expm(A)

ans =

    1.0e+027 *

     3.3898     3.3898     3.3898     3.3898     3.3898
     3.3898     3.3898     3.3898     3.3898     3.3898
     3.3898     3.3898     3.3898     3.3898     3.3898

```

```
3.3898 3.3898 3.3898 3.3898 3.3898
3.3898 3.3898 3.3898 3.3898 3.3898

>> doc exp
Overloaded functions or methods (ones with the same name in other directories)
doc ftseries/exp

>> x

x =

2.0000 + 5.0000i

>> x'

ans =

2.0000 - 5.0000i

>> x(2) = 3

x =

2.0000 + 5.0000i 3.0000

>> x'

ans =

2.0000 - 5.0000i
3.0000

>> x.'

ans =

2.0000 + 5.0000i
3.0000

>> for u = [4 5 8]
u
end

u =

4

u =

5

u =

8

>> for u = 1:8
u
end

u =

1

u =

2

u =

3

u =

4

u =
```

```
5

u =

    6

u =

    7

u =

    8
>> if 1 == 2
u
end
>> 1==2
ans =

    0
>> 1==1
ans =

    1
>>
>>
>>
>> g = input('Enter g: ')
Enter g: 50
g =

    50
>> g = input('Enter g: ');
Enter g: 50
>>
>>
>> g
g =

    50
>> disp(g)
50
>> num2str(g)
ans =

50
>> out = num2str(g)
out =

50
>> disp(['g is ', num2str(g)])
g is 50
>> disp(['g is ', num2str(g) '.'])
g is 50.
>>
>>
>> time = 0:0.01:3;
>> x = time.^2;
??? Error using ==> mpower
Matrix must be square.

>> x = time.^2;
>> x = 2.time.^2 - 1;
??? x = 2.time.^2 - 1;
```

```
|
Error: Missing MATLAB operator.

>> x = 2*time.^2 - 1;
>> plot(time, x)
>> time = 0:0.1:3;
>> x = 2*time.^2 - 1;
>> plot(time, x)
>> time = 0:0.5:3;
>> x = 2*time.^2 - 1;
>> plot(time, x)
>> plot(time, x, '--')
>> plot(time, x, '--r')
>> doc plot
Overloaded functions or methods (ones with the same name in other directories)
  doc curvefit/plot
  doc ftseries/plot
  doc fixedpoint/plot
  doc mpc/plot
  doc rf/plot
  doc wavelet/plot
  doc simulink/plot

>> plot(time, x, '--rx')
>> plot(time, x, '--rx')
>> plot(time, x, '--bx')
>> plot(time, x, '--rx')
>> hold on;
>> plot(time, 2*x, '--kx')
>> figure;
>> plot(time, 2*x, '--kx')
>> grid on
>> title('tt')
>> figure; stem(time, 2*x, '--kx')
>> figure; stem(time, 2*x, '--k')
>> hold on
>> plot(time, 2*x, '--r')
>> figure; bar(time, 2*x, '--r')
??? There is no 'marker' property in the 'barseries' class.

Error in ==> bar at 78
    h = [h specgraph.barseries('YData',y(:,k), xdata{:}, pvpairs{:}),...

>> figure; bar(time, 2*x)
>> figure;
>> subplot(2, 4, 1)
>> plot(time, 2*x, '--r')
>> subplot(2, 4, 5)
>> plot(time, 2*x, '--r')
>> subplot(2, 4, 6)
>> plot(time, 2*x, '--r')
>> subplot(2, 4, 7)
>> bar(time, 2*x, '--r')
??? There is no 'marker' property in the 'barseries' class.

Error in ==> bar at 78
    h = [h specgraph.barseries('YData',y(:,k), xdata{:}, pvpairs{:}),...

>> bar(time, 2*x)
>> xlabel('time')
>> doc function
Overloaded functions or methods (ones with the same name in other directories)
  doc compiler/function
  doc sloptim/function
  doc commblks/function

>> syms a b c
>> a + 2*a

ans =

3*a

>> a + 2*a

ans =

3*a

>> solve('2*x + x^2 = 5')
```

```
ans =  
-1+6^(1/2)  
-1-6^(1/2)  
  
>> solve('2*x + x^2 + y = 5', 'y')  
  
ans =  
-2*x-x^2+5  
  
>> doc solve  
>> solve(2*x + x^2)  
??? Error using ==> mpower  
Matrix must be square.  
  
>> solve(2*a + a^2)  
  
ans =  
0  
-2  
  
>> doc pretty  
>> 3 == 4  
  
ans =  
0  
  
>> A  
  
A =  
17    24     1     8    15  
23     5     7    14    16  
4      6    13    20    22  
10    12    19    21     3  
11    18    25     2     9  
  
>> find(A)  
  
ans =  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
  
>> [r c] = find(A)  
  
r =  
1  
2  
3  
4
```

```
5
1
2
3
4
5
1
2
3
4
5
1
2
3
4
5
1
2
3
4
5
1
2
3
4
5

c =
1
1
1
1
1
1
2
2
2
2
2
3
3
3
3
3
4
4
4
4
4
5
5
5
5
5

>> r'
ans =
Columns 1 through 12
    1     2     3     4     5     1     2     3     4     5     1     2
Columns 13 through 24
    3     4     5     1     2     3     4     5     1     2     3     4
Column 25
    5
>> c'
ans =
Columns 1 through 12
    1     1     1     1     1     2     2     2     2     2     3     3
Columns 13 through 24
    3     3     3     4     4     4     4     4     5     5     5     5
Column 25
    5
```

```
>> A
A =
    17    24     1     8    15
    23     5     7    14    16
     4     6    13    20    22
    10    12    19    21     3
    11    18    25     2     9

>> A(4, 4) = 4
A =
    17    24     1     8    15
    23     5     7    14    16
     4     6    13    20    22
    10    12    19     4     3
    11    18    25     2     9

>> [r c] = find(A == 4)
r =
     3
     4

c =
     1
     4

>> A(A == 4)
ans =
     4
     4

>> A(A > 4)
ans =
    17
    23
    10
    11
    24
     5
     6
    12
    18
     7
    13
    19
    25
     8
    14
    20
    15
    16
    22
     9

>> A > 4
ans =
     1     1     0     1     1
     1     1     1     1     1
     0     1     1     1     1
     1     1     1     0     0
     1     1     1     0     1

>>
```
