Matlab cheat-sheet

doc Open help browser.

[] Enclose all elements in square brackets to construct an array.

, When constructing an array: separate elements that belong to the same row.

; When constructing an array: create new row.

```
A = [1,2;3,4]

A =     1     2
        3     4
```

At the end of a command: suppress output.

() Index to elements of an array.

Specify arguments passed to a called function.

% Include comment.

: Generate a sequential sequence of regularly spaced numbers.

```
B = 3:7

B =     3     4     5     6     7
```

Specify a range of indices for indexing into multiple rows or columns of a matrix.

```
D = C(:,1:3)      % Read columns 1-3 of all rows
```

’ Transpose matrix.

```
E =     2     4                 E’ =    2     6     10
        6     8                         4     8     12
        10    12
```

.* Element-wise multiplication.

```
F =     1     2                 G =     2     3
        3     4                         4     5

F*G =   10    13                F.*G =  2     6
        22    29                        12    20
```

.^ Element-wise power.

== Equal to, can be used to compare operands quantitatively.

<= Less than or equal to.

R2U Perform N-dimensional Fourier transform (included in exercise *.zip).

U2R Perform N-dimensional inverse Fourier transform (included in exercise *.zip).

find Find indices of elements that are satisfying a certain condition.

```
H =     1     3     6
        4     3     8
        5     2     9

J = find(H<=3)

J =     1
        4
        5
        6
```

meshgrid Replicate the grid vectors that are given as input to produce a full grid.

```
[X,Y] = meshgrid(1:3,4:7)

X =     1     2     3          Y =     4     4     4
        1     2     3                  5     5     5
        1     2     3                  6     6     6
        1     2     3                  7     7     7
```

griddata Interpolation for 2D gridded data in meshgrid format. Input are sample grid points *X* and *Y*, sample values *V* and query points *Xq* and *Xy*, and eventually an interpolation method ('nearest', 'linear', 'natural', 'cubic'). Output are interpolated values *Vq*.

```
[X,Y] = meshgrid(-5:5);

V = sin(X+Y);

[Xq,Yq] = meshgrid(-5:0.2:5);

Vq = griddata(X,Y,V,Xq,Yq,'cubic');
```

function Functions can be declared in Matlab via function[y1,…,yN] = functionname(x1,…,xM). The function named 'functionname' accepts x1,…,xM as input, and returns y1,…,yN as output. The function is saved in a text file with a .m extension.

fix Round towards zero.

round Round the array.

ceil Round the array to the next highest integers.

floor Round the array to the next lowest integers.

abs Take the absolute values of elements of a complex array.

conv Convolve two functions with one another.