Cheatography

MATLAB Cheat Sheet

by oalmus3 via cheatography.com/93864/cs/20671/

fprintf

```
A1 = [9.9, 9900];
A2 = [8.8, 7.7 ; ...
      8800, 7700];
formatSpec = 'X is %4.2f meters
or %8.3f mm\n';
fprintf(formatSpec,A1,A2)
Output:
X is 9.90 meters or 9900.000 mm
X is 8.80 meters or 8800.000 mm
X is 7.70 meters or 7700.000 mm
```

%4.2f in the formatSpec input specifies that the first value in each line of output is a floating-point number with a field width of four digits, including two digits after the decimal point. %8.3f in the formatSpec input specifies that the second value in each line of output is a floating-point number with a field width of eight digits, including three digits after the decimal point. \n is a control character that starts a new line.

Line Properties

Color:
red = r
green = g
blue = b
cyan = c
magenta = m
yellow = y
black = k
white = w
none
LineStyle:
solid line = -

Line Properties (cont)

dashed line = --
dotted line = :
dash dotted line = -.
no line = none
Marker:
circle = o
plus sign = +
asterisk = *
point = .
cross = x
square = square or s
diamond = diamond or d
none = none
MarkerEdgeColor & MarkerFaceColor:
same as color
MarkerIndices

max

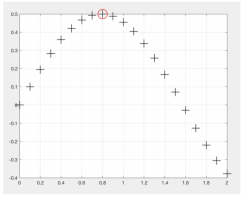
```
A = [23 42 37 18 52];
M = max(A)
Output:
M = 52
A = [2 8 4; 7 3 9]
M = max(A);
Output:
M = 1×3
     7 8 9
```

mean

```
A = [0 1 1; 2 3 2; 1 3 2; 4 2 2]
     0 1 1
     2 3 2
     1 3 2
     4 2 2
M = mean(A);
Output:
  1.7500 2.2500 1.7500
A = [0 1 1; 2 3 2; 3 0 1; 1 2 3]
     0 1 1
     2 3 2
     3 0 1
     1 2 3
M = mean(A, 2);
Output:
    0.6667
    2.3333
    1.3333
    2.0000
```

plot examples

Let's make a fancy plot:



```
close all;
clear all;
time = [0:0.1:2];
fun = sin(time).*cos(time);
mx = max(fun);
ind = find(fun==mx);
plot(time, fun, '+k', 'MarkerSize', 15);
hold on
plot(time(ind), fun(ind), 'or', 'MarkerSize', 20);
grid on;
```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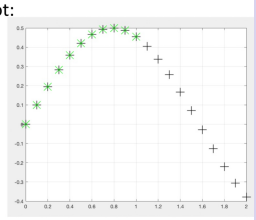
plot examples

Let's make a fancy plot:



```
close all;
clear all;
time = [0:0.1:2];
fun = sin(time).*cos(time);
ind = find(time<=1);
plot(time, fun, '+k', 'MarkerSize', 15);
hold on
plot(time(ind), fun(ind), 'xg', 'MarkerSize', 20);
grid on;
```

sum

```
A = 1:10;
S = sum(A)
Output:
S = 55
```

fprintf

```
a = [1.02 3.04 5.06];
fprintf('%d\n',round(a));
Output:
1
3
5
```

%d in the formatSpec input prints each value in the vector, round(a), as a signed integer.

building arrays/loops

Vectorized Formula

```
x = [4 7 3 7 5 9 2 3 5];
save = x > 6;
y = x(save);
```

Formula using a Loop

```
x = [4 7 3 7 5 9 2 3 5];
y = [];
for i = 1:length(x)
   if (x(i) > 6)
       y = [y, x(i)];
   end
end
```

Builds an array by adding on element to the back at a time.

max loop

Vectorized Formula

```
x = [4 7 3 7 5 9 2 3 5];
mx = max(x);
```

Formula using a Loop

```
x = [4 7 3 7 5 9 2 3 5];
mx = x(1);
for i = 1:length(x)
   if x(i) > mx
      mx = x(i);
   end
end
```