Commands from “Introduction to MATLAB” Slides

```
10 + 20
sqrt(99)
r = 2
C = 2*pi*r^2

X = 0;
```

```
help
doc
help plot
doc datatypes
close all; clear all; clc;

help avifile
ls

x = 5
v = [1 2 3 7 8]
m = [ 1 2 3 7 8; 5 2 4 5 3]

m
m(2,5)
m(5,2)

x = [1 2; 3 4]
inv(x)
x'
x * inv(x)
x .* inv(x) % notice the period

m2 = [ v; v; m]
m3 = [ v v m]
x = m2(1,:)
y = m2(:,1)

X = 1:10
Y = 1:2:20
Z = 20:-1:1
x = rand(10)
x(1:2, 3:5)
x(1:2, :)

figure
rand
ls
LS
RAND
Figure
rand(2);
linspace(0,2*pi)
linspace(0,2*pi,10)
ls('c:\')
ls c:\
clear all

f = figure
im = imread('ngc6543a.jpg')
h = image(im)
[x, y] = ginput(1)
rand(1)
sqrt(26)

x = linspace(0,2*pi)
x = linspace(0,2*pi);
y = sin(x); plot(x,y);

x = linspace(1,100);
y = rand([100 1]);
y = sort(y);
plot(x,y);
plot(x, y, '*r');

figure;
axis([0 100 0 100]);
[x y] = ginput(10);
plot(x,y,'dr');
p = polyfit(x,y,1)
hold on;
ezplot('0.8415*x + 6.6390', [0 100 0 100]);
hold off;

help title
figure
title('hello_world')
xlabel('2\pir^2');
ylabel('time_seconds', 'Interpreter', 'none');

x = rand([100 1]);
y = sort(x);
plot(y);
plot(sort(rand([100 1])));
```

```
im = imread('ngc6543a.jpg');
image(im);
im2 = im(70:530, 90:520, :);
image(im2);
```

Commands from “Introduction to MATLAB” Slides

```
x = input('Enter a number and then enter ');
if(x > 9)
        % This code will only execute if x > 9
    disp('Number is greater than 9');
else
        % This code will only execute if x ~= 9
disp('Number is less than 9');
end
```

```
figure;
hold on;
a = [0 100 0 100];
axis(a);
for i = 1:10
        [x(i) y(i)] = ginput(1);
        plot(x,y,'*');
        axis(a);
end
```

```
x = input('Type a number and then enter ');
while(x != 9)
        x = input('Type a number and then enter ');
end
x = input('Type in a number and press <enter> ');
if(x == 1)
  disp('one');
else
  if(x == 2)
    disp('two');
  else
    if(x == 3)
     disp('three');
    else
      disp('more than three');
    end
  end
end
```

```
x = input('Type in a number and press <enter> ');
switch(x)
  case(1)
    disp('one');
  case(2)
    disp('two');
  case(3)
    disp('three');
  otherwise
    disp('more than three');
end
```

```
name = input('Type in an image file name with '' marks ');
try
  im = imread(name);
  image(im);
catch
  disp('could not open file');
end
disp('program did not exit');
```

```
function showfile(filename)
%SHOWFILE - display the contents of a file as ASCII

fid = fopen(filename, 'r');

while 1
  tline = fgetl(fid);
  if ~ischar(tline)
    break
  end
  disp(tline)
end
fclose(fid);
```

```
figure
axis([0 100 0 100]);
[ x y] = ginput(10);
plot(x,y, 'dr');
p = polyfit(x,y,1);
hold on;
equ_str=[num2str(p(1)) '*x + ' num2str(p(2))];
ezplot(equ_str, [0 100 0 100]);
hold off;

for i = 1:20
  pause(rand(1)*2);
  tic;
  x = input('press the (enter) key');
  t(i) = toc;
end
hist(t);
```

```
function im2 = imagecrop(imname)
% Written by Dirk Colbry
% 01-27-2014
% Tool to select and crop an image

im = imread(imname); done=false;
while(~done)
        image(im); axis off; axis equal;
        title('Select upper right corner of cropped area')
        [x1,y1] = ginput(1);
        title('Select lower right corner of cropped area')
        [x2,y2] = ginput(1);
        im2 = im(y1:y2, x1:x2, :);
        image(im2); axis off; axis equal;
        in = input('Is this correct (Yes/No)', 's');
        if (strcmp(in,'Yes'))
                done = true;
        end
end
```