# Lab 5 – Exploring the Main Commands of MATLAB (I)

## Lab Warm Up Assessment:

1. Evaluate the following MATLAB expressions. Where x,y,z have values equal to 2.5, 0.5 and 2 respectively.
2. X + y +z
3. X \*y\*z
4. x/z
5. X^y
6. X^z

**Code:**

close all;

clc;

x=2.5;

y=0.5;

z=2;

a=x+y+z;

b=x\*y\*z;

c=x/z;

d=x^y;

e=x^z;

fprintf('1. x+y+z: %d\n',a);

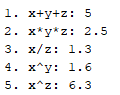
fprintf('2. x\*y\*z: %.1f\n',b);

fprintf('3. x/z: %.1f\n',c);

fprintf('4. x^y: %.1f\n',d);

fprintf('5. x^z: %.1f\n',e);

**Output:**



1. Given two sides a = 3.2 and b = 4.6 of a triangle and angle theta = 60 between these two sides, find the length of the third side and the arc of the triangle.

**Code:**

close all;

clc;

a=3.2;

b=4.6;

theta=60;

c=sqrt(a^2+b^2);

d=2\*pi\*(theta/360);

fprintf('Length of the third side: %.1f\n',c);

fprintf('Arc of the triangle: %.2f\n',d);

**Output:**



1. Write a program to convert temperature given in degrees Centigrade, say 35.4 C, to degrees Fahrenheit.

**Code:**

close all;

clc;

c=input('Enter temperature in Celsius: ');

f=c\*9/5+32;

fprintf('Converting into Fahrenheit: %.1f\n',f);

**Output:**



## Exercise

### Exercise 1

**Evaluate the following MATLAB expressions. Where i,j,k and l have the following values:**

1. i\*j + k\*l
2. i\*(j+k)\*l
3. (i\*j) + (k/l)
4. (i+j) \* i^j

**Code:**

close all;

clc;

i=2;

j=4;

k=6;

l=8;

a=i\*j+k\*l;

b=i\*(j+k)\*l;

c=(i\*j)+(k/l);

d=(i+j)\*i^j;

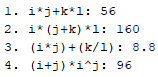
fprintf('1. i\*j+k\*l: %d\n',a);

fprintf('2. i\*(j+k)\*l: %d\n',b);

fprintf('3. (i\*j)+(k/l): %.1f\n',c);

fprintf('4. (i+j)\*i^j: %d\n',d);

**Output:**



### Exercise 2

**Evaluate the following MATLAB expressions. Where x = 3-4i and y=1+2i.**

1. X + y
2. X – y
3. X \* z
4. x/y
5. X power y

**Code:**

close all;

clc;

x=3+4i;

y=1-2i;

a=x+y;

b=x-y;

c=x\*y;

d=x/y;

e=x^y;

disp(a);

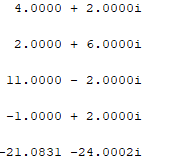
disp(b);

disp(c);

disp(d);

disp(e);

**Output:**



### Exercise 3

Write a program to solve Quadratic Equation in MATLAB.

**Code:**

close all;

clc;

a=2;

b=4;

c=6;

x=(-b+sqrt(b^2-4\*a\*c))/(2\*a);

y=(-b-sqrt(b^2-4\*a\*c))/(2\*a);

disp(x);

disp(y);

**Output:**



### Exercise 4

Write a program to solve Distance formula in MATLAB.

**Code:**

close all;

clc;

x1=1;

y1=3;

x2=2;

y2=4;

d=sqrt((x2-x1)^2+(y2-y1)^2);

fprintf('Distance: %.2f\n',d);

**Output:**



### Exercise 5

Write a program to solve mid-point in MATLAB.

**Code:**

close all;

clc;

x1=4;

x2=10;

y1=1;

y2=5;

x=(x1+x2)/2;

y=(y1+y2)/2;

fprintf('midpoint: (%d,%d)\n',x,y);

**Output:**

