# 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:**

clc;

x=2.5;

y=0.5;

z=2;

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

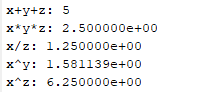
fprintf('x\*y\*z: %d\n',x\*y\*z);

fprintf('x/z: %d\n',x/z);

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

fprintf('x^z: %d\n',x^z);

**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:**

clc;

a=3.2;

b=4.6;

t=60;

fprintf('length of the third side: %d\n',sqrt(a^2+b^2));

fprintf('arc of the triangle: %d\n',2\*pi\*(t/360));

**Output:**



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

**Code:**

clc;

c=35.4;

fprintf('fahrenheit: %f\n',c\*9/5+32);

**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:**

clc;

i=1;

j=2;

k=3;

l=4;

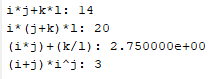
fprintf('i\*j+k\*l: %d\n',i\*j+k\*l);

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

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

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

**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:**

clc;

x=3-4i;

y=1+2i;

disp(x+y);

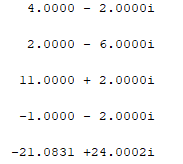
disp(x-y);

disp(x\*y);

disp(x/y);

disp(x^y);

**Output:**



### Exercise 3

Write a program to solve Quadratic Equation in MATLAB.

**Code:**

clc;

a=5;

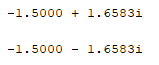
b=15;

c=25;

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

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

**Output:**



### Exercise 4

Write a program to solve Distance formula in MATLAB.

**Code:**

clc;

x1=5;

y1=15;

x2=10;

y2=20;

fprintf('distance: %d\n',sqrt((x2-x1)^2+(y2-y1)^2));

**Output:**



### Exercise 5

Write a program to solve mid-point in MATLAB.

**Code:**

clc;

x1=4;

x2=8;

y1=12;

y2=16;

fprintf('Mid-Point 1: %d\n',(x1+x2)/2);

fprintf('Mid-Point 2: %d\n',(y1+y2)/2);

**Output:**

