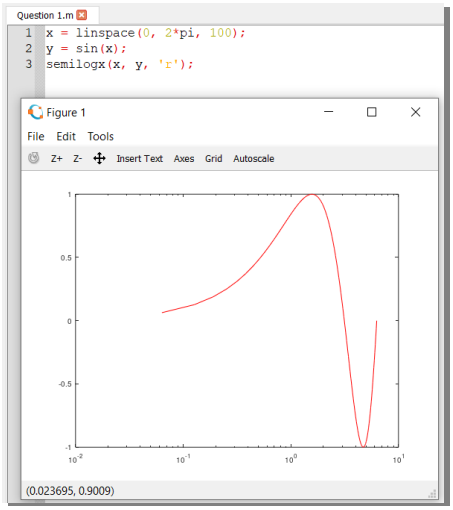
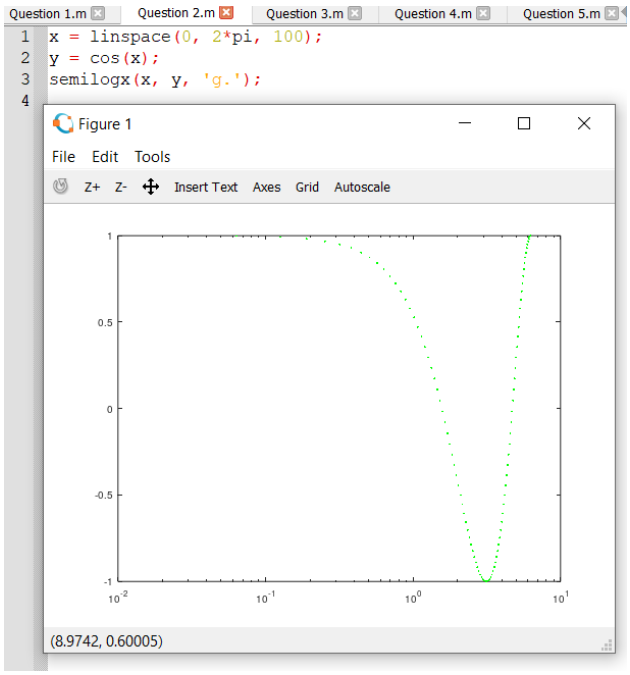
Lab sheet 3-SCS2211

1. Plot a sin(x) wave over one period which x is in 0 to 2 π range with enough samples to get smooth lines. Using the same graph try to plot sin wave in logarithmic scale for the x-axis using red solid lines.

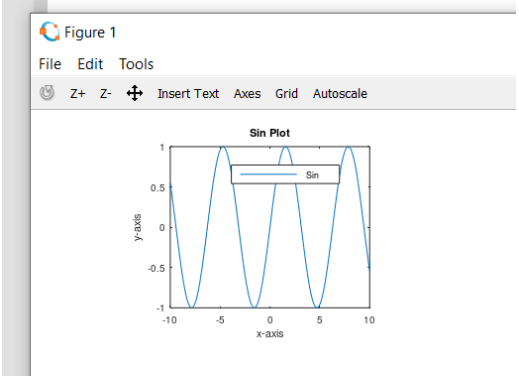


2. Plot a Cos(x) wave over one period which x is in 0 to 2 π range with enough samples to get smooth lines. Using the same graph try to plot Cos wave in logarithmic scale for both x-axis and y axis using green dotted lines.



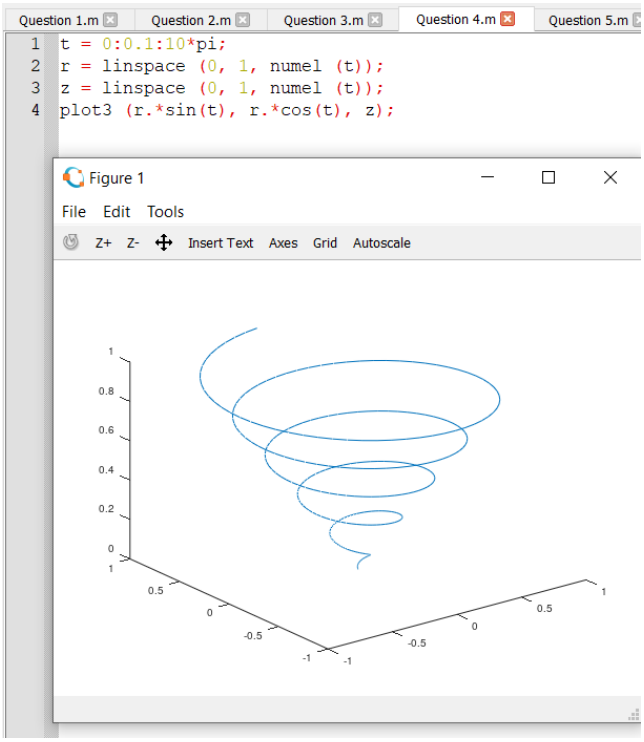
3. Makes a figure with 2 rows and three columns of axes, and activates the first axis for plotting and plot sin curve on it. (Each axis should have labels, a legend, and a title).

```
subplot(2,3,1);
fplot(@sin, [-10,10]);

xlabel ("x-axis");
ylabel ("y-axis");
title("Sin Plot");
legend("Sin");
```



4. Make the Helix shape plot using the knowledge of 3D plotting.

```
t = 0:0.1:10*pi;
r = linspace (0, 1, numel (t));
z = linspace (0, 1, numel (t));
plot3 (r.*sin(t), r.*cos(t), z);
```



5. A= [0 2 4 6 6 4 2 0] is vector. Transform vector A in to a matrix called A_MAT and display a scaled version of the matrix A_MAT.

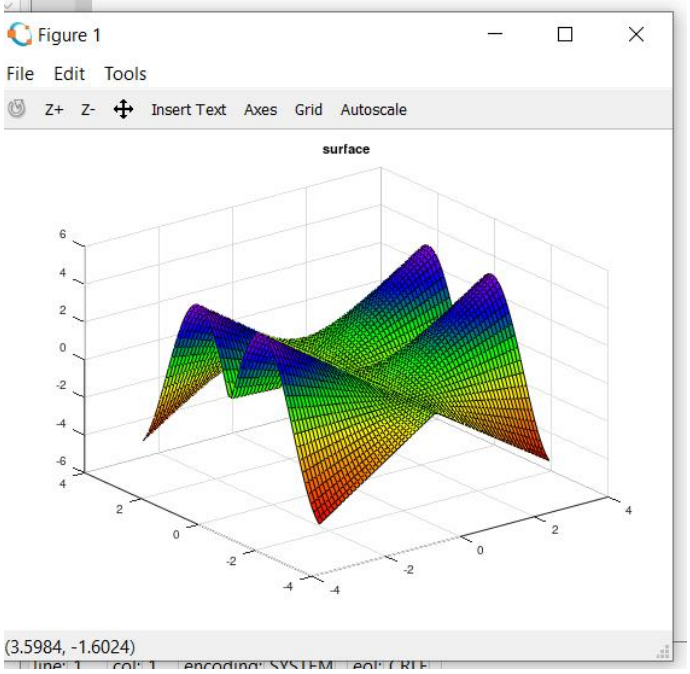
Commented [D T1]:

```
A_MAT = reshape([0,2,4,6,6,4,2,0], 2,4);

display(A_MAT);
```

```
>> A_MAT =

   0   4   6   2
   2   6   4   0
```

6. Draw a surface of the size 12 points in X axis and 8 points in Y axis but random Z values. Color the surface with 'rainbow' colormap.

```
1  x=-pi:0.1:pi;
2  y=-pi:0.1:pi;
3  [X, Y]= meshgrid(x, y);
4  r = sqrt (x .^ 2 + y .^ 2);
5  z = sin (r)'* r;
6  surf(x,y,z);
7  title ("surface");
8  colormap(rainbow) %
9
```

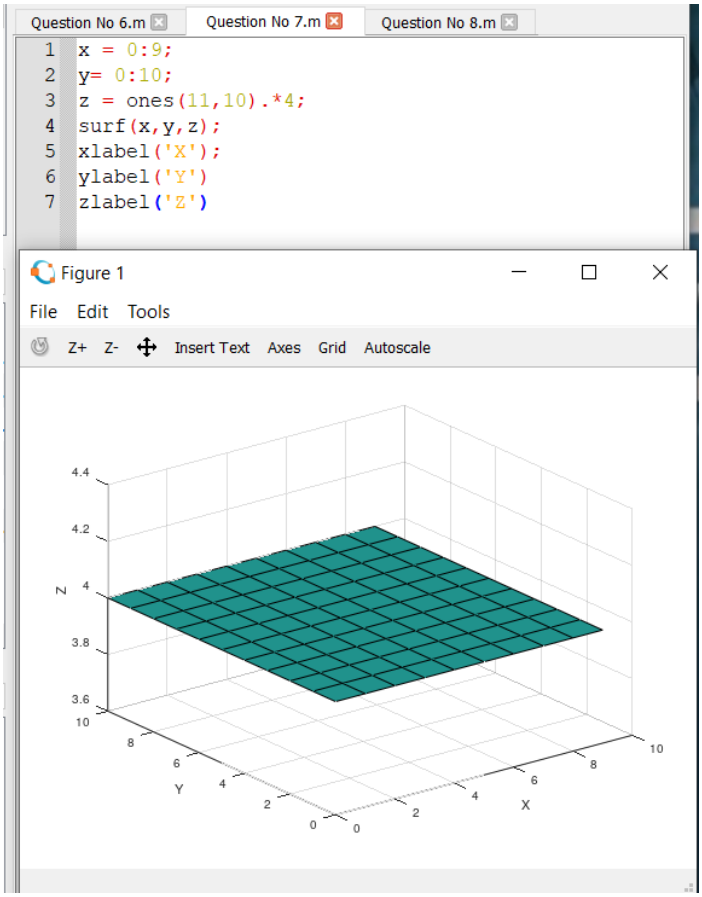


7. Draw a flat surface (i.e. same value in Z axis) of the size 9 points in X and10 points in Y. Mark X, Y and Z axes with a single letter using the 'labell' functions.

Commented [D T2]: Speling of label

Question No 6.m | Question No 7.m | Question No 8.m

```
1  x = 0:9;
2  y= 0:10;
3  z = ones(11,10).*4;
4  surf(x,y,z);
5  xlabel('X');
6  ylabel('Y')
7  zlabel('Z')
```



8. Plot the function $y = 1 (1 + x 2/)$ on 2 dimensions where x is a50 element vector from -2ϖ to 2ϖ. Color the plot with red while using dashes to draw the line.

Commented [D T3]: Use word formula editor to include a formula. This is unclear.

```
function [y] = func1 (x)
  y = 1./(1 + x.^2);
endfunction
```

Question No 6.m | Question No 7.m | Question No 8.m | function1.m

```
1  x = linspace(-pi*2,pi*2,1500);
2  y = function1(x);
3  plot(x,y,'r')
```

Figure 1

ile Edit Tools

Z+ Z- Insert Text Axes Grid Autoscale