DIGITAL ASSIGNMENT – 3

FALL SEMESTER : 2018-19

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Slot: L5+L6

Course Name: CALCULUS FOR ENGINEERS (MATLAB)

Course Code: MAT1011

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Question 1.

Write a MATLAB code to find the area bounded by the curve y=7-x^2 and the lines x =-1 and x=2 and execute it. Also plot the graph.

Solution:

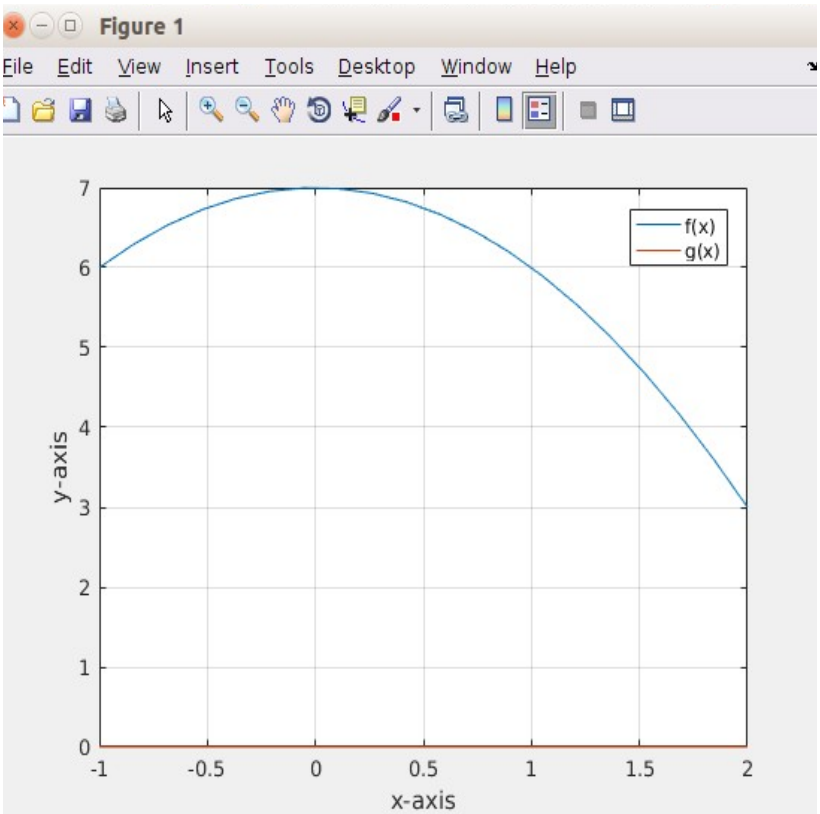
Editor - /home/mock1/selva.m

selva.m

```
clc
clear all
syms x
f=input('Enter the upper curve f(x):');
g=input('Enter the lower curve g(x):');
L=input('Enter the limits of integration for x [a,b]:');
a=L(1); b=L(2);
Area=int(f-g,x,a,b);
disp(['Area bounded by the curve f(x) and g(x) is:',char(Area)]);
x1=linspace(a,b,20); y1=subs(f,x,x1);
x2=x1; y2=subs(g,x,x2);
plot(x1,y1); hold on; plot(x2,y2); hold off;
xlabel('x-axis'); ylabel('y-axis');
legend('f(x)','g(x)'); grid on;
```

Command Window

```
Enter the upper curve f(x):7-x^2
Enter the lower curve g(x):0
Enter the limits of integration for x [a,b]:[-1,2]
Area bounded by the curve f(x) and g(x) is:18
```



Question 2.

Write a MATLAB code to find the area between the curves y=x^2 and y=(x)^1/2 and execute it. Also plot the graph.

Solution:

Editor - /home/mock1/selva.m

selva.m

```
1 -    clc
2 -    clear all
3 -    syms x
4 -    f=input('Enter the upper curve f(x):');
5 -    g=input('Enter the lower curve g(x):');
6 -    L=input('Enter the limits of integration for x [a,b]:');
7 -    a=L(1); b=L(2);
8 -    Area=int(f-g,x,a,b);
9 -    disp(['Area bounded by the curve f(x) and g(x) is:',char(Area)]);
10 -   x1=linspace(a,b,20); y1=subs(f,x,x1);
11 -   x2=x1; y2=subs(g,x,x2);
12 -   plot(x1,y1); hold on; plot(x2,y2); hold off;
13 -   xlabel('x-axis'); ylabel('y-axis');
14 -   legend('f(x)','g(x)'); grid on;
```

Command Window

```
Enter the upper curve f(x):sqrt(x)
Enter the lower curve g(x):x^2
Enter the limits of integration for x [a,b]:[0,1]
Area bounded by the curve f(x) and g(x) is:1/3
```