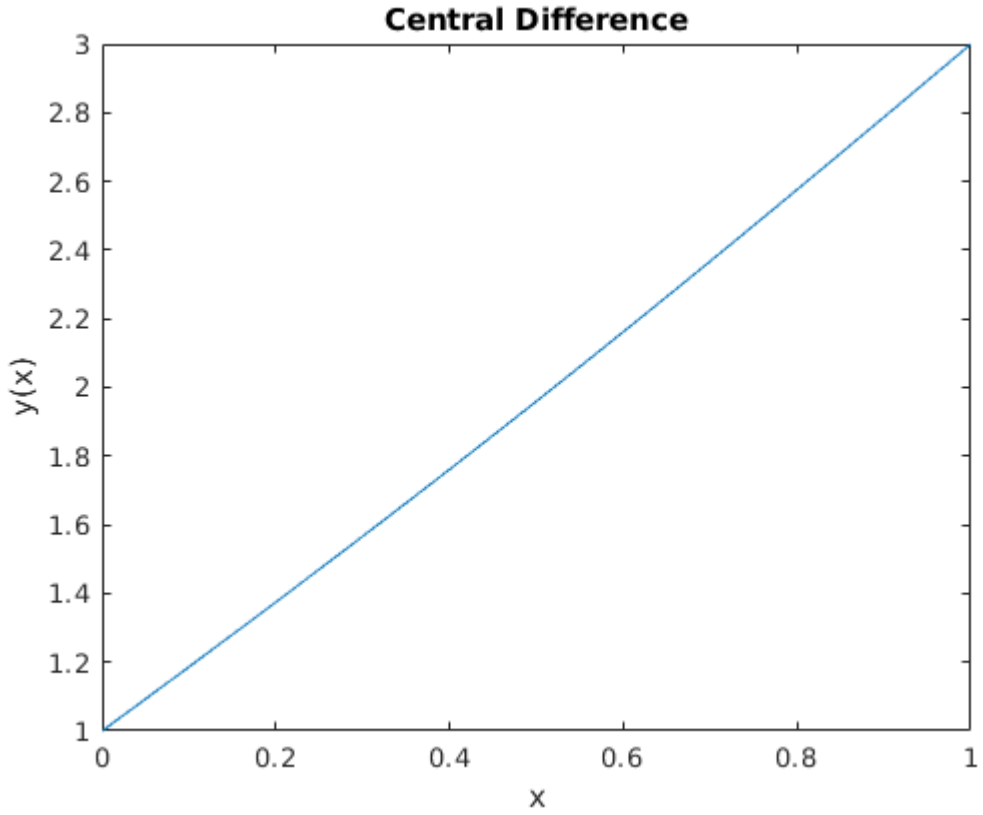
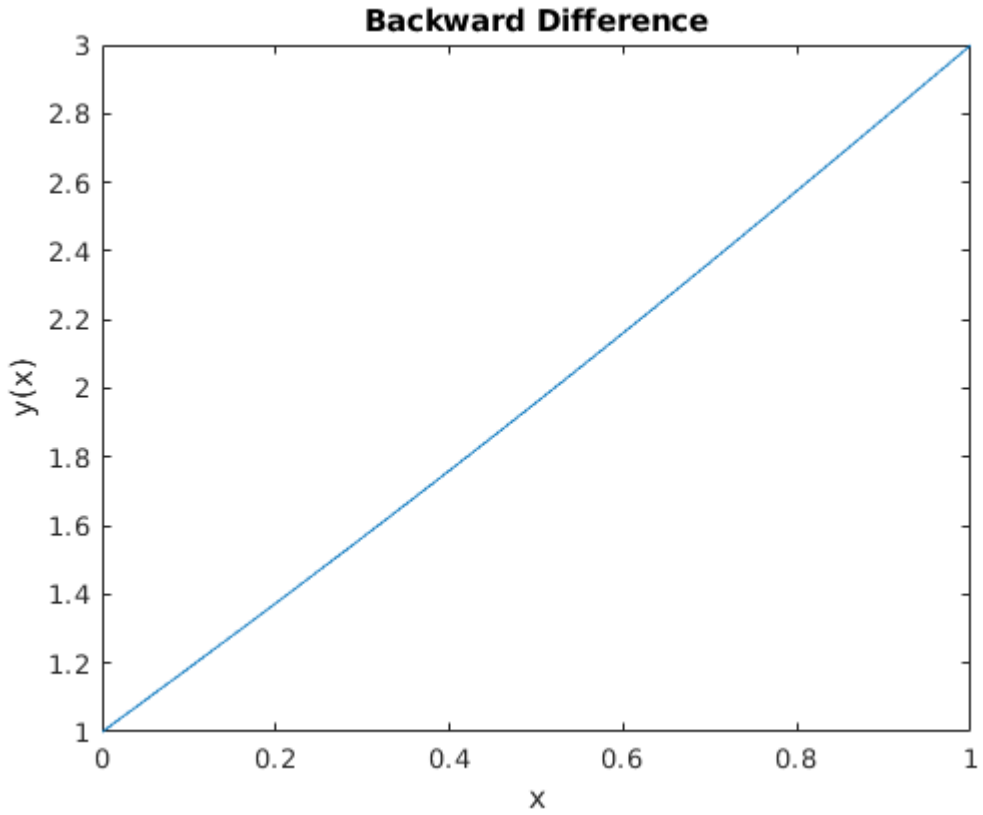
Lab 9 Output

Roll no. - 170123057

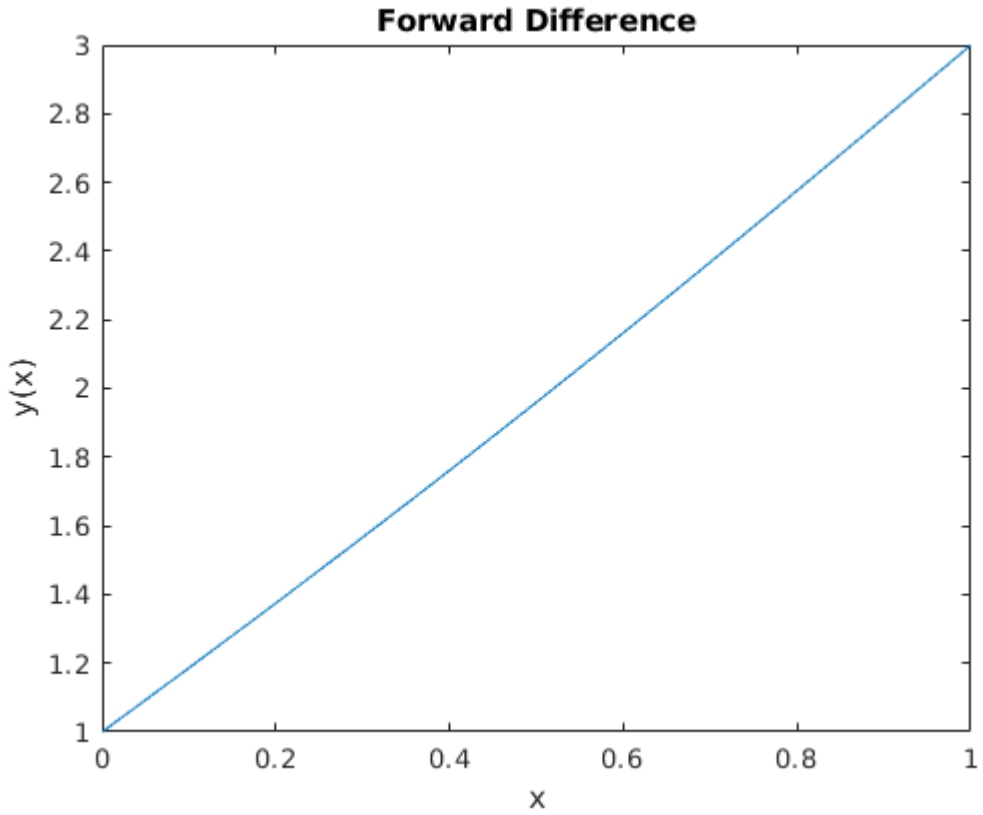
Q1(a)
The plot for solution using Central difference for the first order derivative is



The plot for solution using Backward difference for the first order derivative is

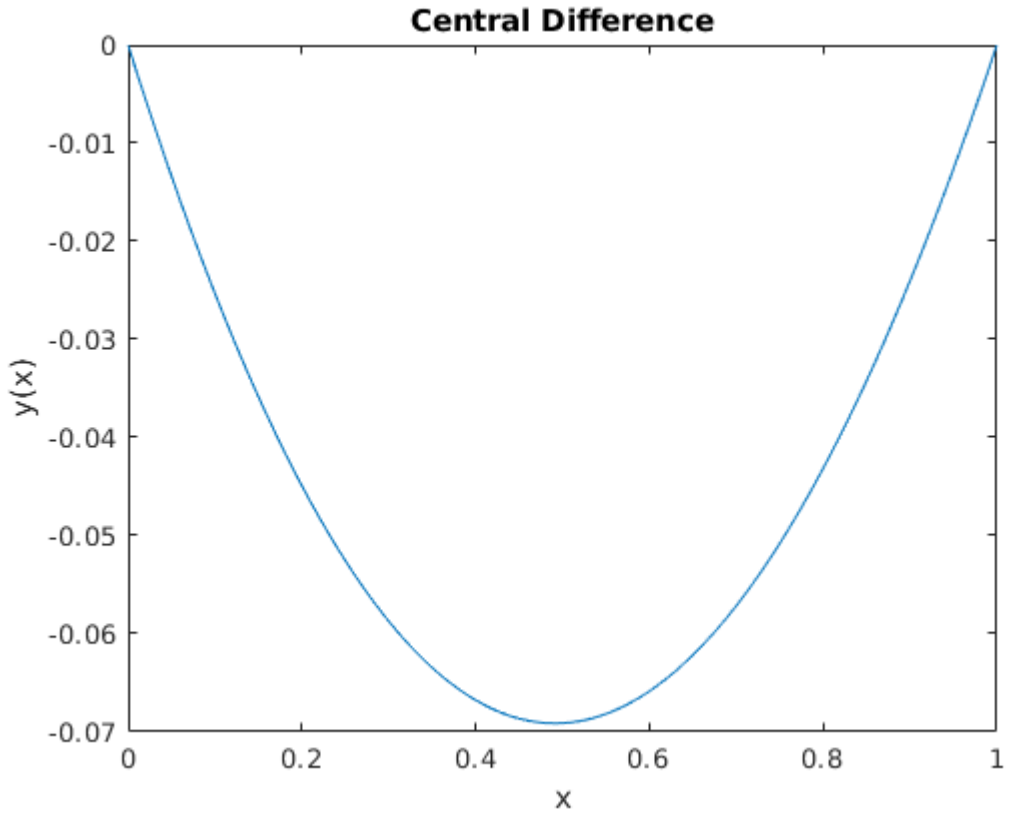


The plot for solution using Forward difference for the first order derivative is

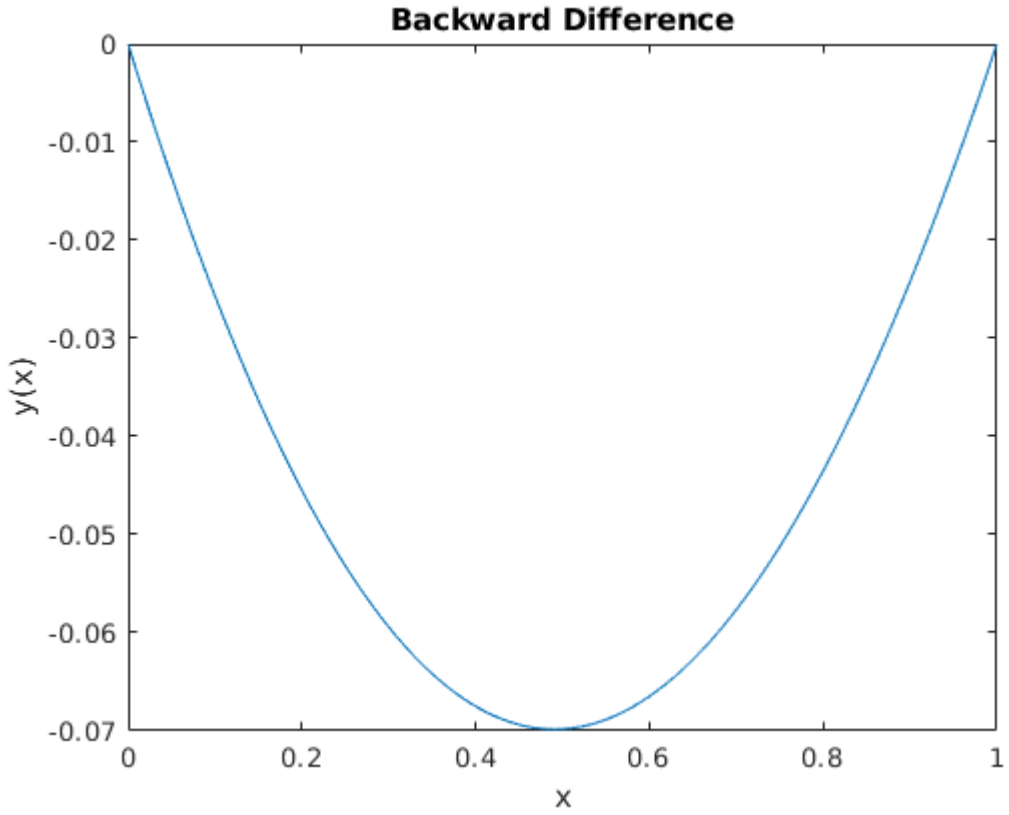


Q1(b)

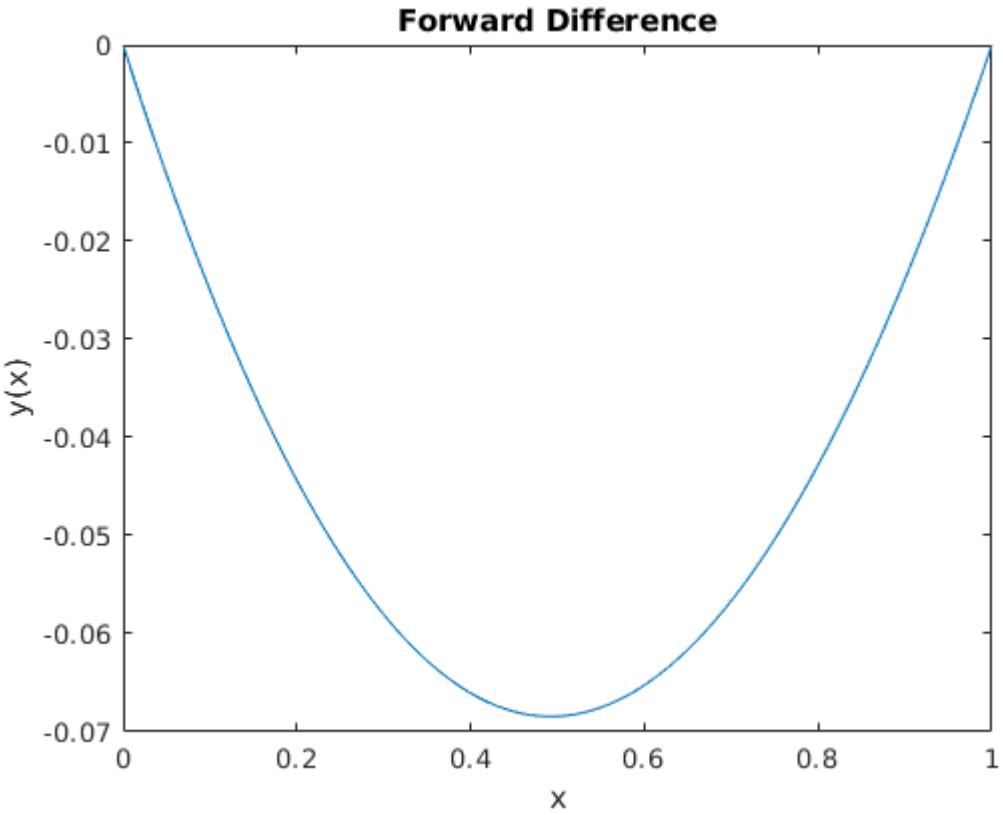
The plot for solution using Central difference for the first order derivative is



The plot for solution using Backward difference for the first order derivative is

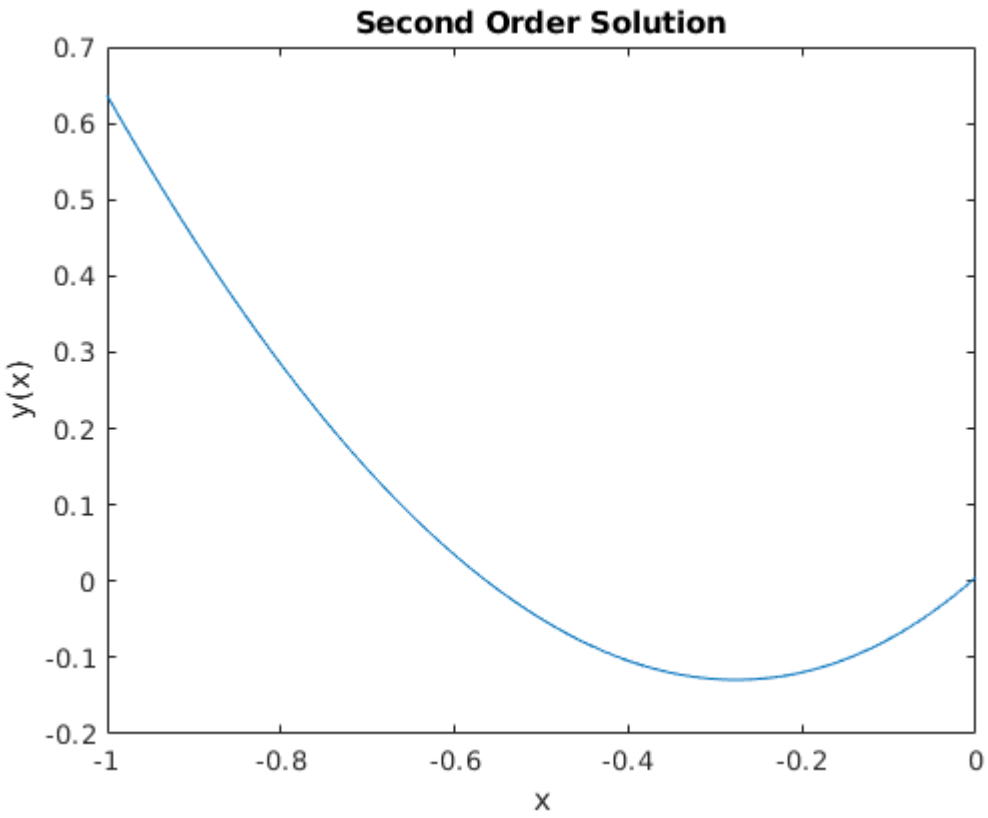


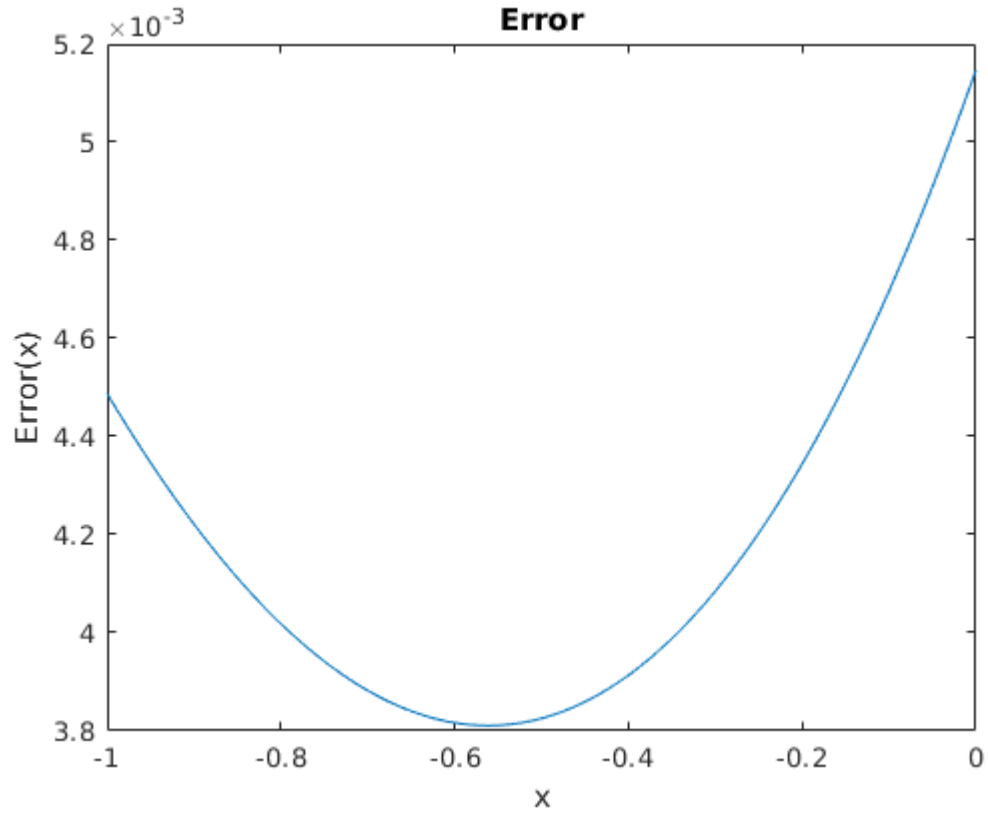
The plot for solution using Forward difference for the first order derivative is


Forward Difference
0
-0.01
-0.02
-0.03
-0.04
-0.05
-0.06
-0.07
y(x)
0
0.2
0.4
0.6
0.8
1
x

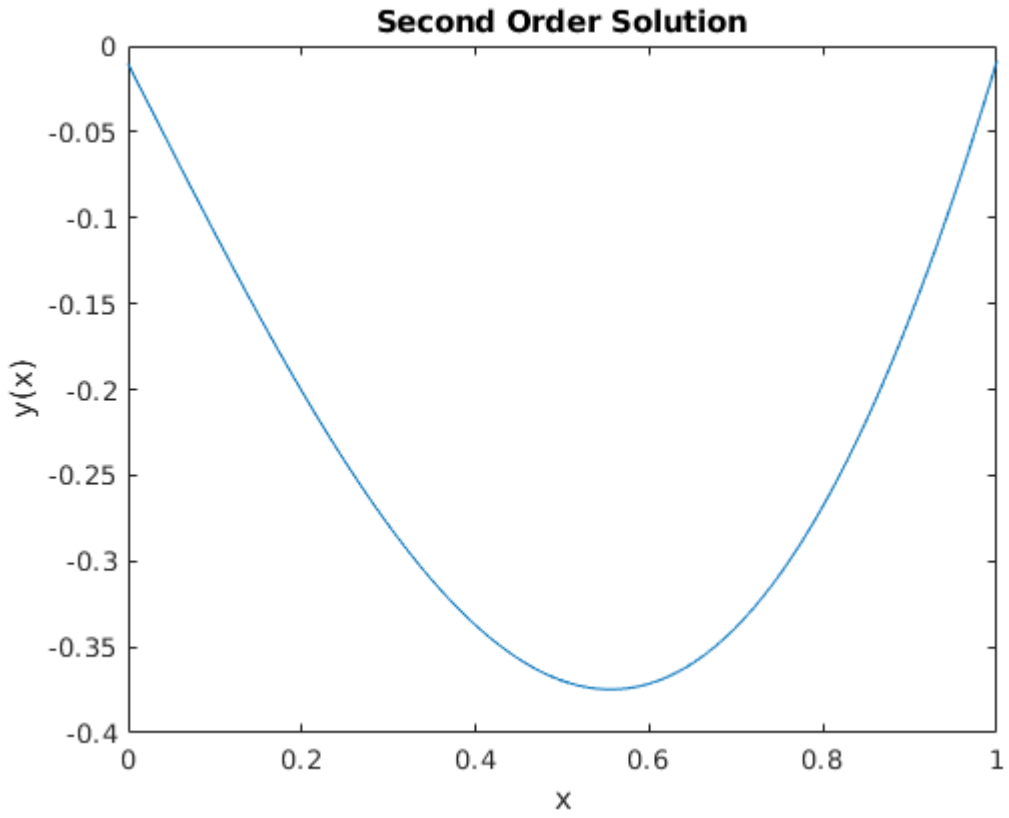
Q2.

Q2(a)


Second Order Solution
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
y(x)
-1
-0.8
-0.6
-0.4
-0.2
0
x


Error
×10^-3
5.2
5
4.8
4.6
4.4
4.2
4
3.8
Error(x)
-1
-0.8
-0.6
-0.4
-0.2
0
x

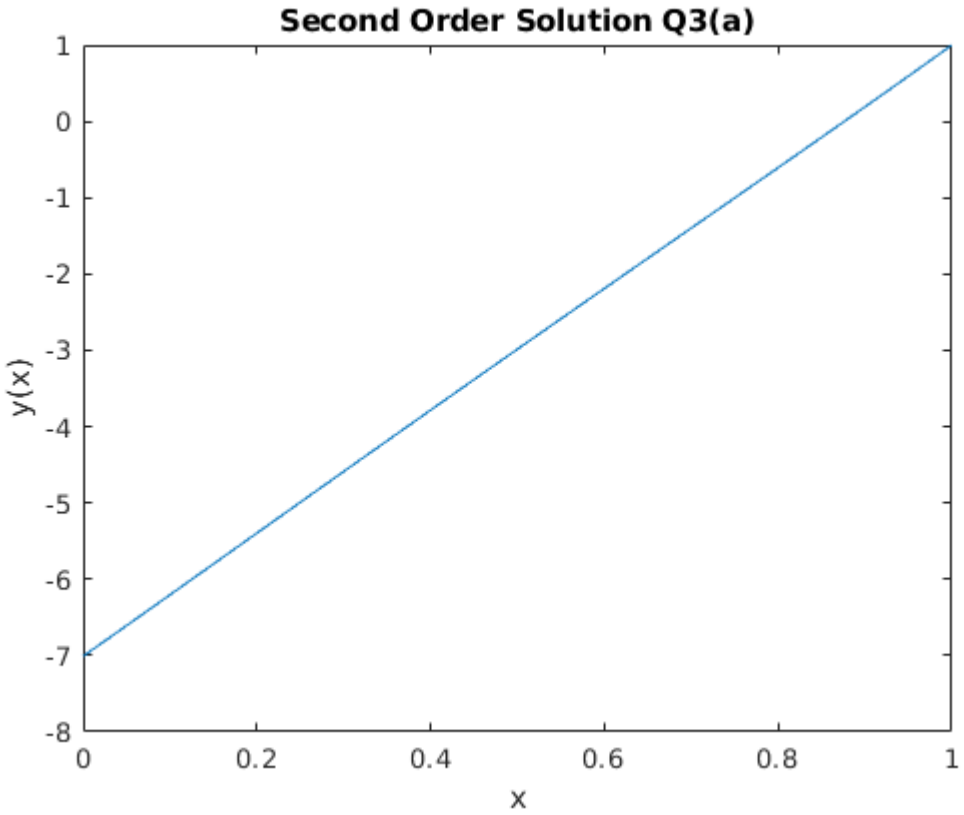
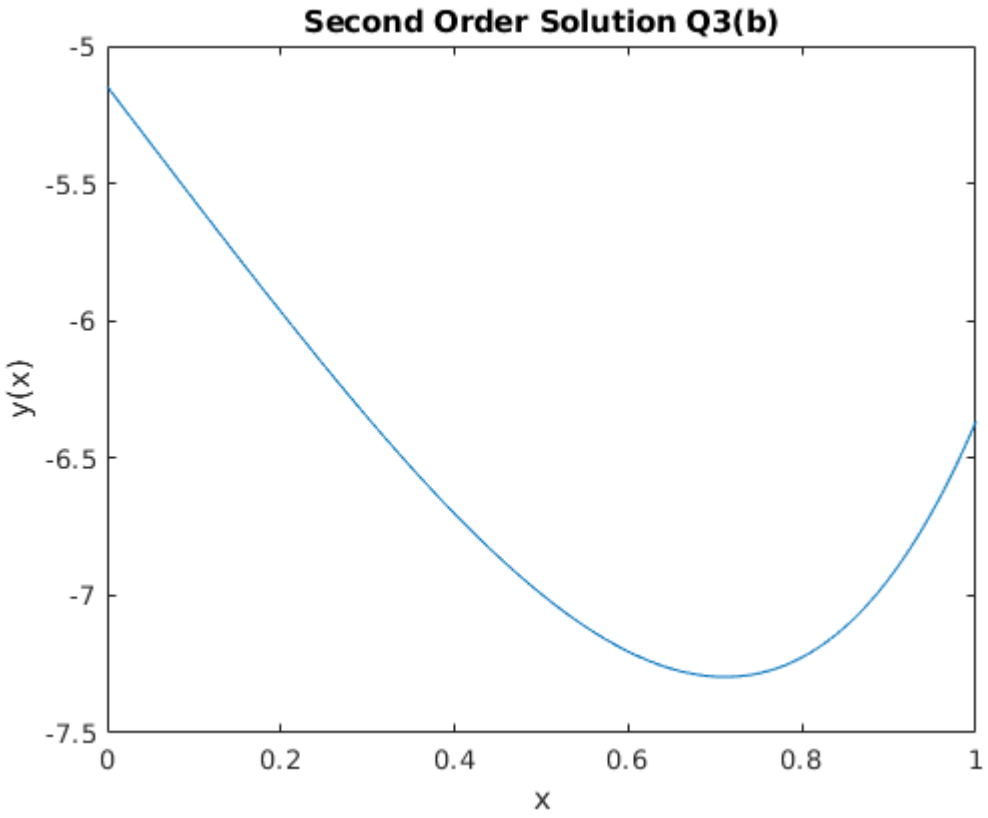
Q2(b)



No error plot because the given exact solution was not satisfying the given second order PDE

Q3.

Plot for Q3(a)



Plot for Q3(b)