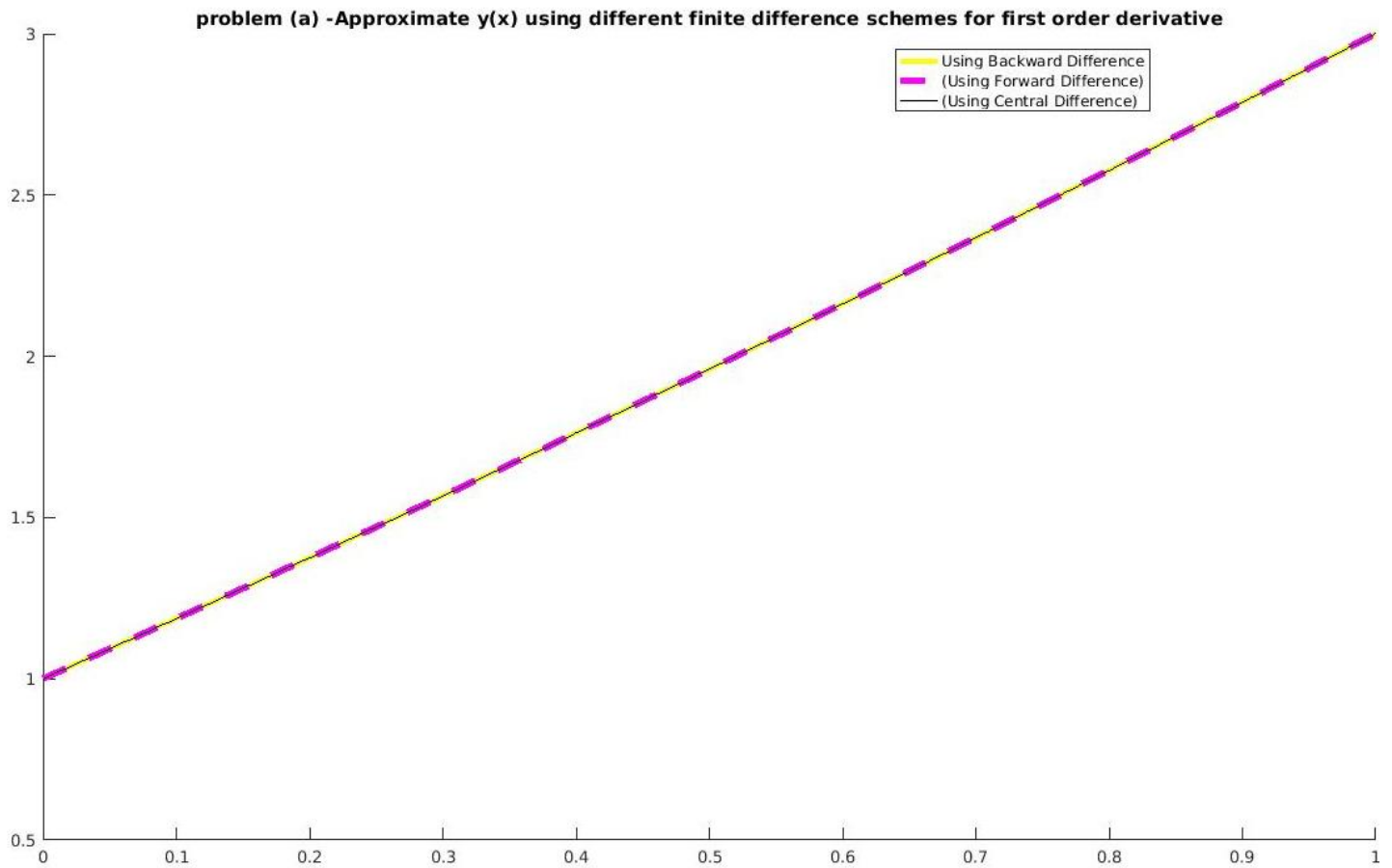


LAB 9

Q1)

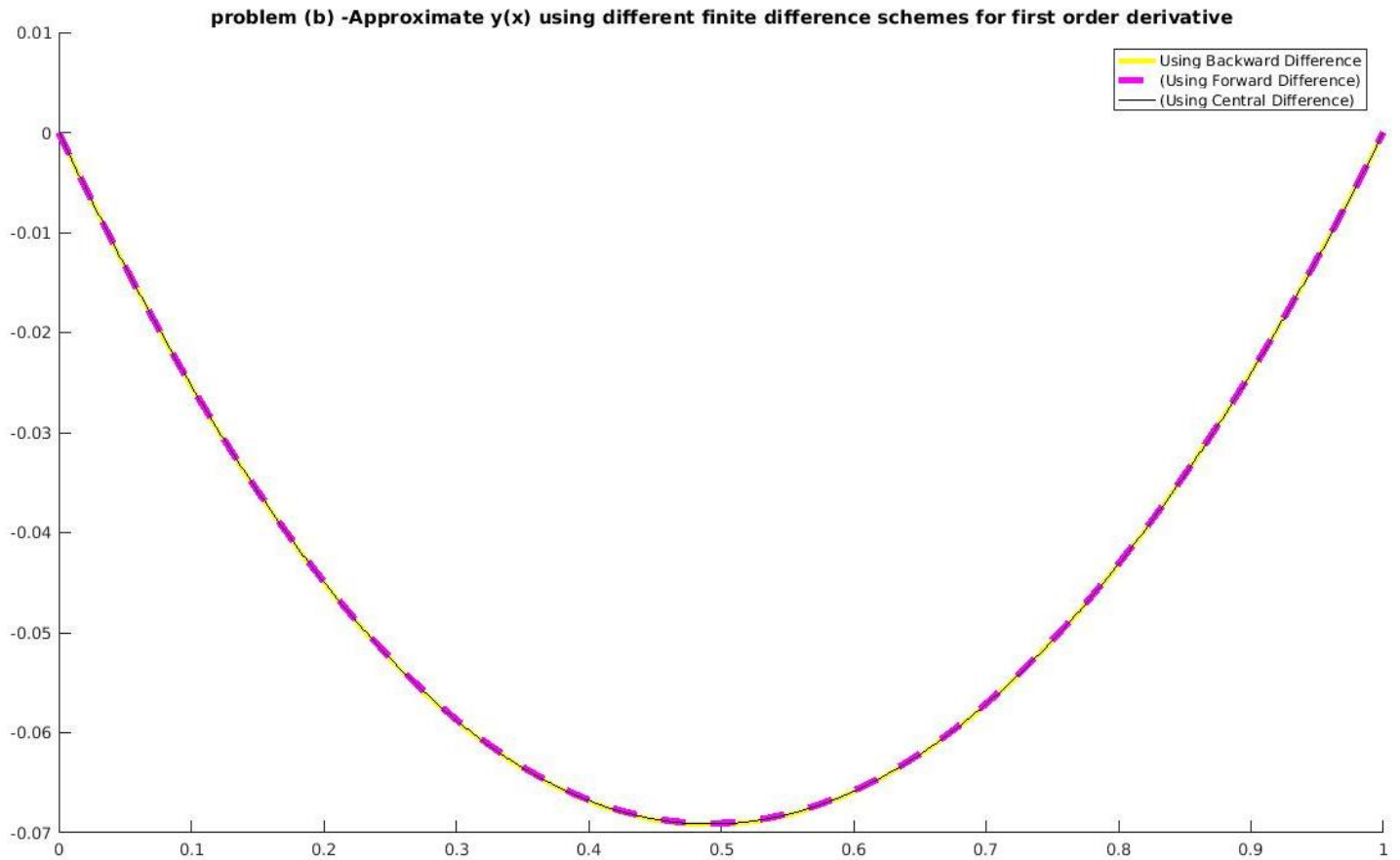
problem (a) -

x	y(x): Backward Case	y(x): Forward Case	y(x): Central Case
0.000000e+00	1.000000e+00	1.000000e+00	1.000000e+00
1.000000e-01	1.186470e+00	1.186489e+00	1.186480e+00
2.000000e-01	1.375165e+00	1.375200e+00	1.375183e+00
3.000000e-01	1.566734e+00	1.566779e+00	1.566756e+00
4.000000e-01	1.761640e+00	1.761691e+00	1.761666e+00
5.000000e-01	1.960140e+00	1.960190e+00	1.960165e+00
6.000000e-01	2.162263e+00	2.162310e+00	2.162286e+00
7.000000e-01	2.367816e+00	2.367854e+00	2.367835e+00
8.000000e-01	2.576387e+00	2.576414e+00	2.576401e+00
9.000000e-01	2.787371e+00	2.787385e+00	2.787378e+00
1.000000e+00	3.000000e+00	3.000000e+00	3.000000e+00



problem (b) -

x	$y(x)$: Backward Case	$y(x)$: Forward Case	$y(x)$: Central Case
0.000000e+00	-1.186683e-13	6.735391e-14	1.073024e-13
1.000000e-01	-2.536605e-02	-2.529872e-02	-2.533234e-02
2.000000e-01	-4.497840e-02	-4.486696e-02	-4.492262e-02
3.000000e-01	-5.879680e-02	-5.866072e-02	-5.872869e-02
4.000000e-01	-6.684079e-02	-6.669622e-02	-6.676843e-02
5.000000e-01	-6.917872e-02	-6.903883e-02	-6.910871e-02
6.000000e-01	-6.591827e-02	-6.579360e-02	-6.585588e-02
7.000000e-01	-5.719830e-02	-5.709710e-02	-5.714766e-02
8.000000e-01	-4.318198e-02	-4.311049e-02	-4.314621e-02
9.000000e-01	-2.405089e-02	-2.401363e-02	-2.403224e-02
1.000000e+00	0.000000e+00	0.000000e+00	0.000000e+00

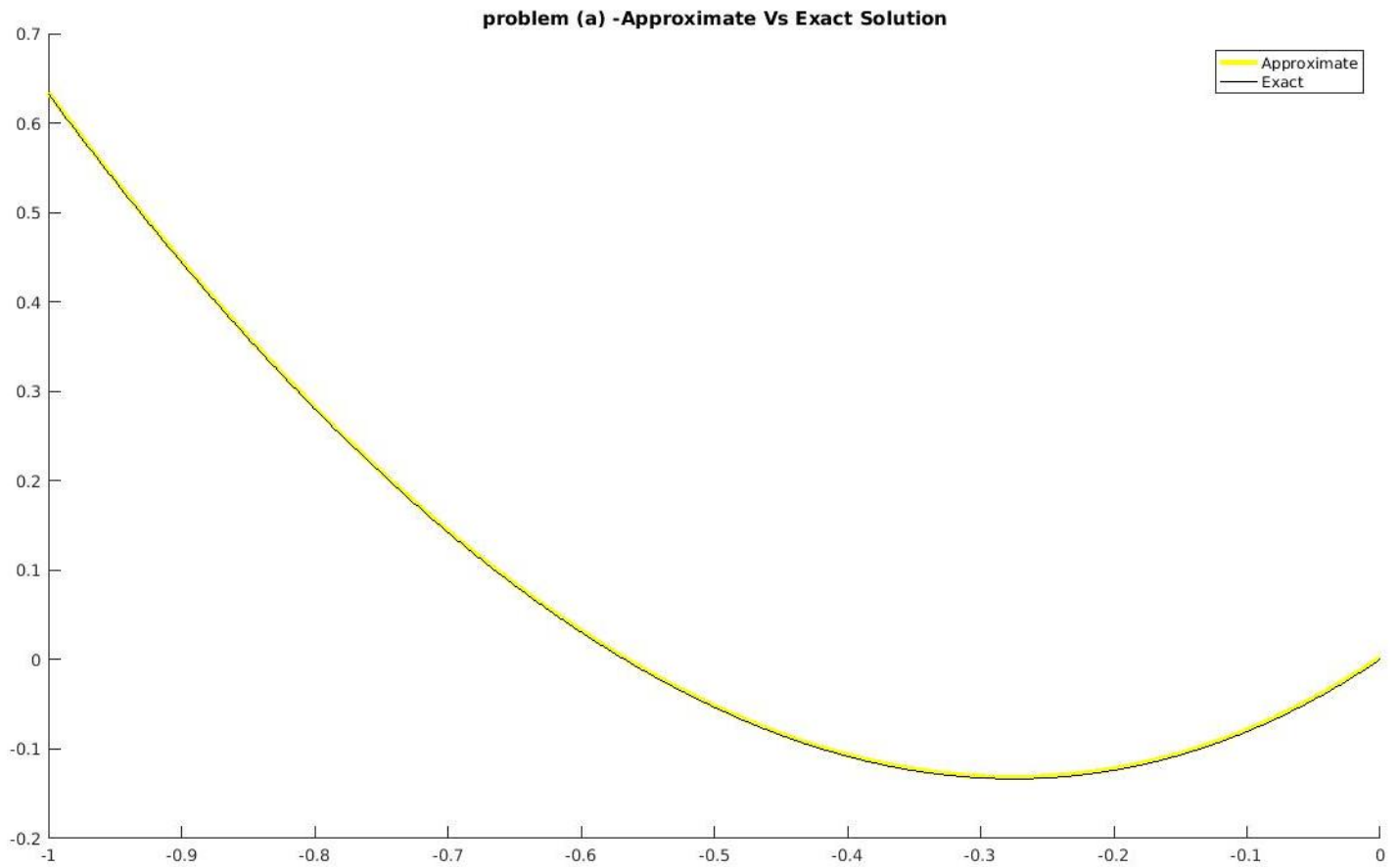


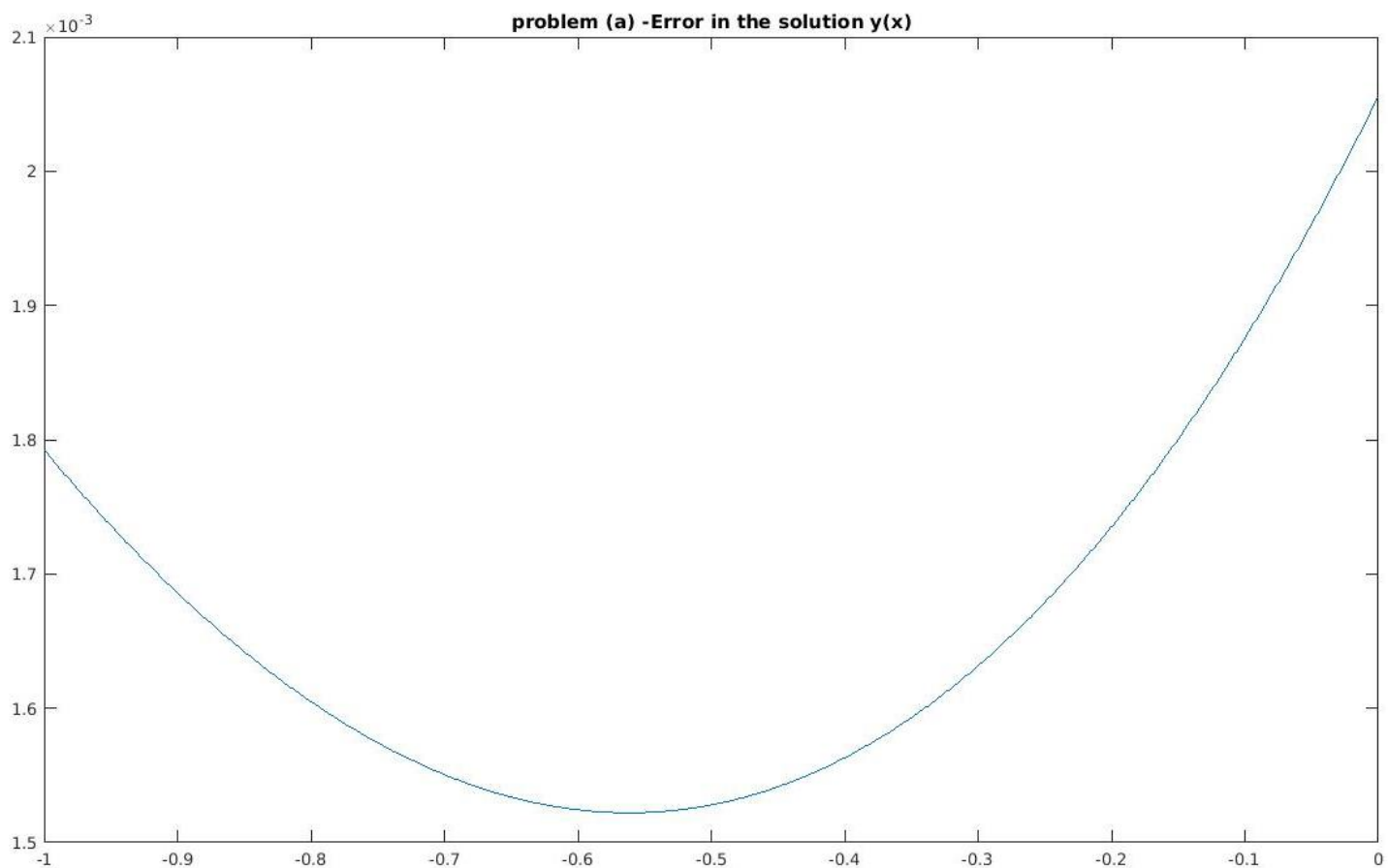
Q2)

problem (a) -

x	Approximate $y(x)$	Exact $y(x)$	Error
-1.000000e+00	6.339128e-01	6.321206e-01	1.792290e-03
-9.000000e-01	4.457733e-01	4.440873e-01	1.685968e-03
-8.000000e-01	2.821418e-01	2.805368e-01	1.604924e-03
-7.000000e-01	1.439408e-01	1.423903e-01	1.550552e-03
-6.000000e-01	3.223738e-02	3.071302e-02	1.524363e-03
-5.000000e-01	-5.173736e-02	-5.326533e-02	1.527975e-03
-4.000000e-01	-1.065649e-01	-1.081280e-01	1.563107e-03

-3.000000e-01	-1.306139e-01	-1.322455e-01	1.631566e-03
-2.000000e-01	-1.220109e-01	-1.237462e-01	1.735232e-03
-1.000000e-01	-7.860770e-02	-8.048374e-02	1.876042e-03
0.000000e+00	2.055973e-03	0.000000e+00	2.055973e-03

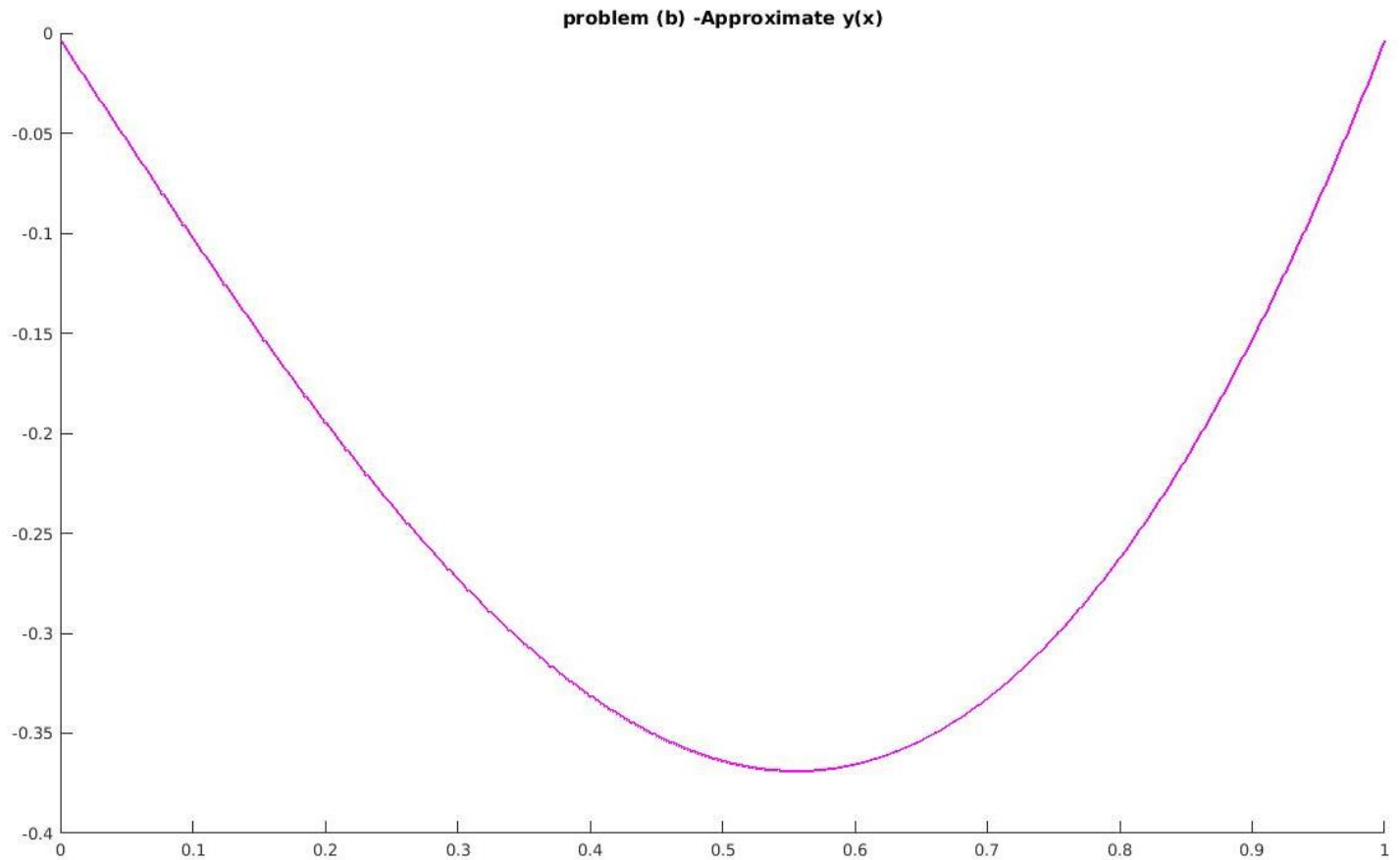




problem (b) -

x	Approximate $y(x)$
0.000000e+00	-4.117256e-03
1.000000e-01	-1.029518e-01
2.000000e-01	-1.948346e-01
3.000000e-01	-2.730225e-01
4.000000e-01	-3.311853e-01
5.000000e-01	-3.636015e-01
6.000000e-01	-3.653419e-01
7.000000e-01	-3.324363e-01
8.000000e-01	-2.620208e-01
9.000000e-01	-1.524620e-01

1.000000e+00 -3.454424e-03

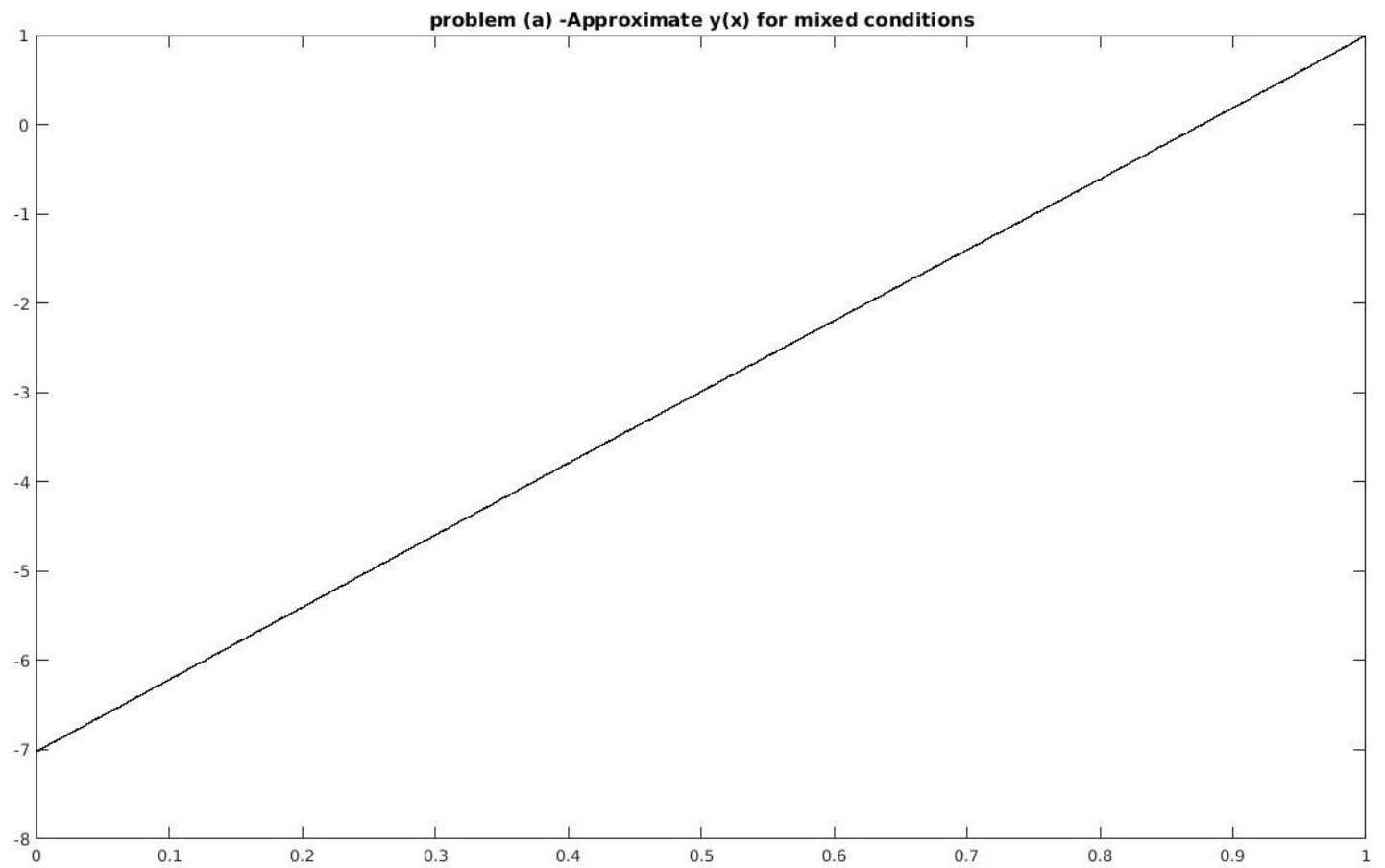


Q3)

problem (a) -

x	y(x): Approximate
0.000000e+00	-7.017546e+00
1.000000e-01	-6.211944e+00
2.000000e-01	-5.402419e+00
3.000000e-01	-4.593563e+00
4.000000e-01	-3.788355e+00
5.000000e-01	-2.988169e+00
6.000000e-01	-2.192792e+00

7.000000e-01	-1.400441e+00
8.000000e-01	-6.077615e-01
9.000000e-01	1.901920e-01
1.000000e+00	1.000000e+00



problem (b) -

x	y(x): Approximate
0.000000e+00	-5.151686e+00
1.000000e-01	-5.566192e+00
2.000000e-01	-5.972822e+00
3.000000e-01	-6.359352e+00

4.000000e-01	-6.709749e+00
5.000000e-01	-7.003214e+00
6.000000e-01	-7.212993e+00
7.000000e-01	-7.304925e+00
8.000000e-01	-7.235639e+00
9.000000e-01	-6.950345e+00
1.000000e+00	-6.380112e+00

