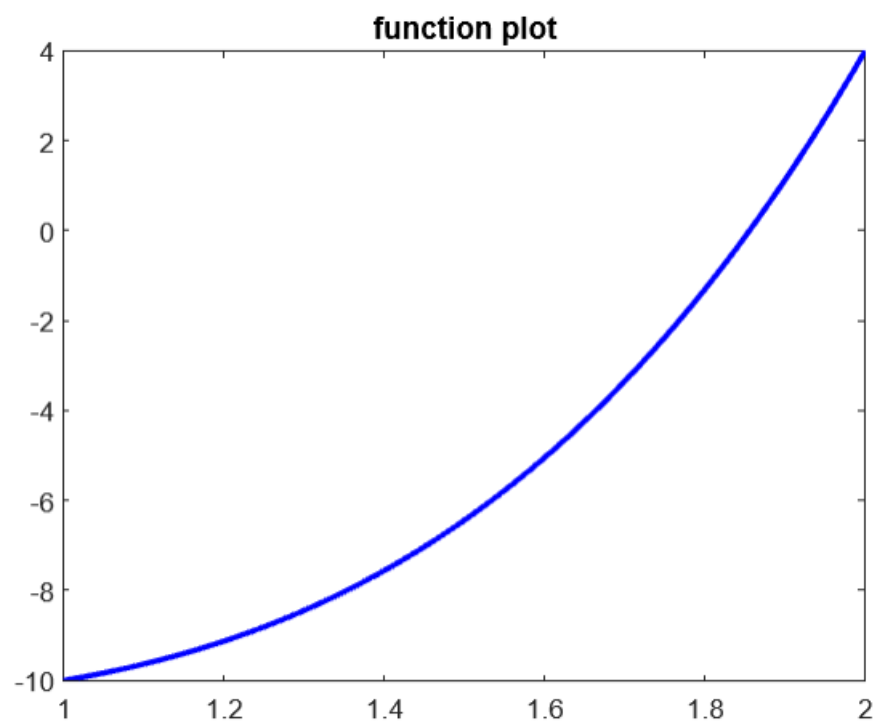
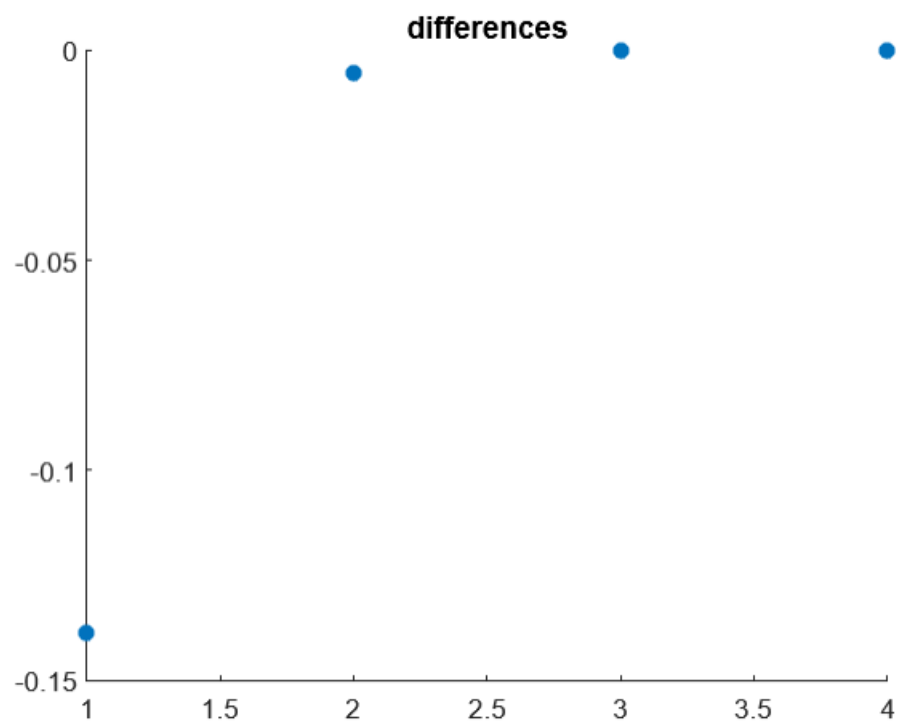
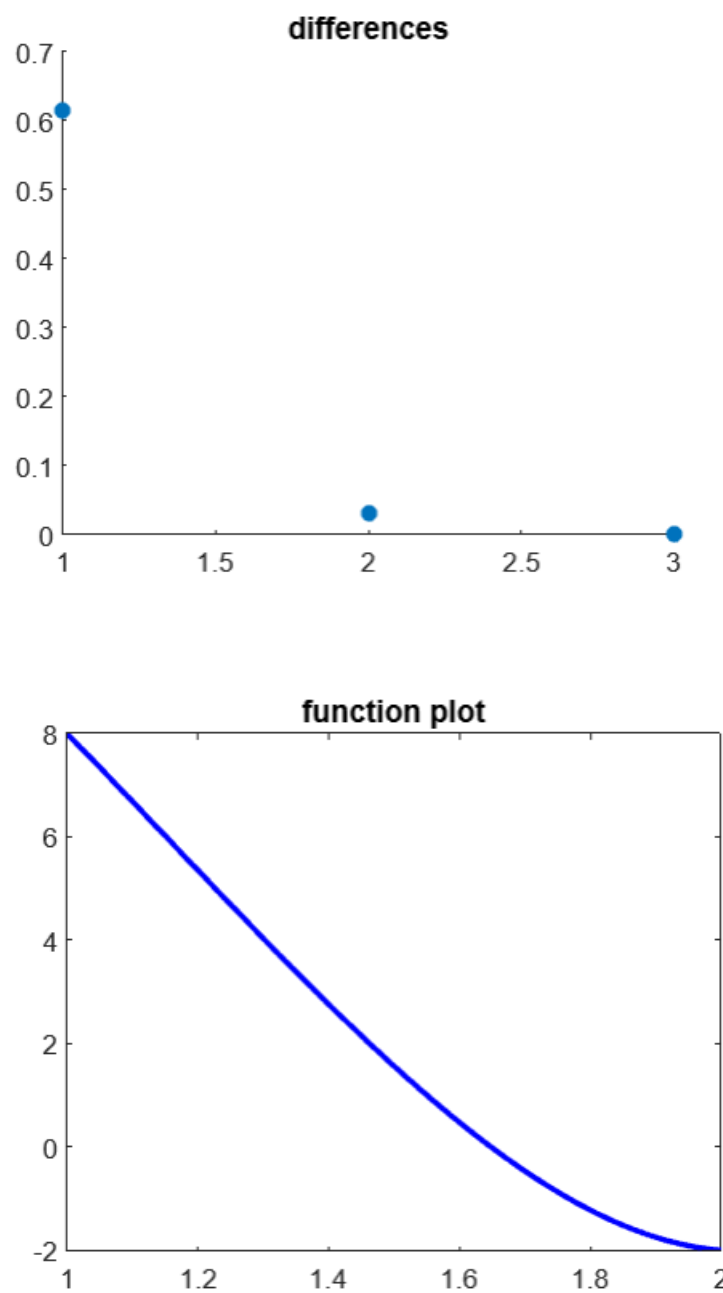


1.I have taken $g(x)=(10+x)^{1/4}$



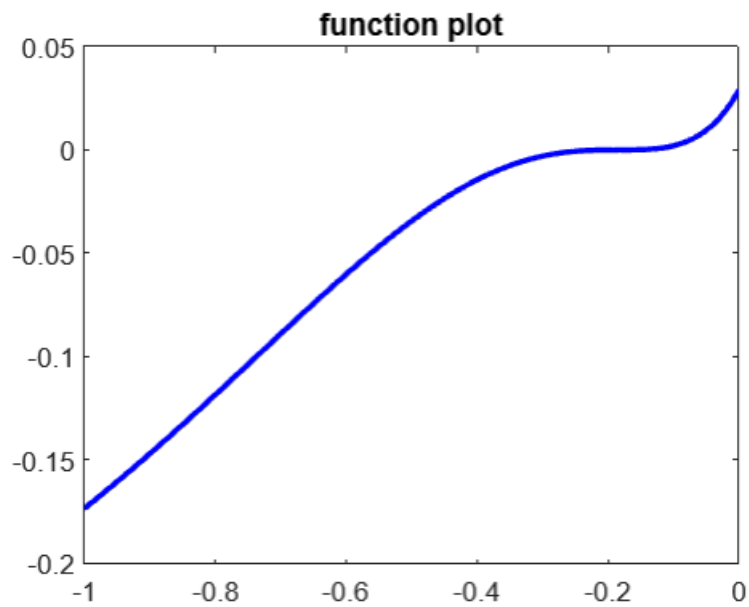
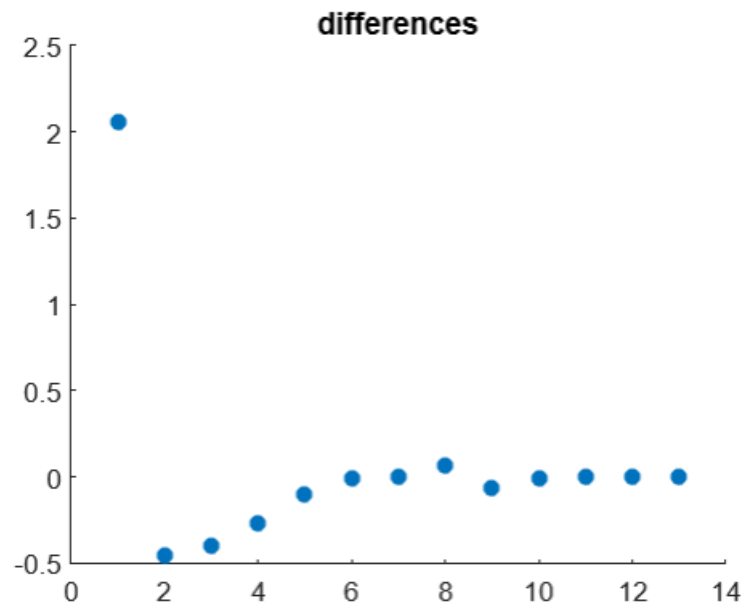
index	iterates	differences
1	2	0
2	1.8612097182042	0.138790281795801
3	1.85580459703978	0.00540512116442216
4	1.85559313961817	0.00021145742161055
5	1.85558486557902	8.27403914405167e-06

2.
a)



initial guess:1		
index	iterates	differences
1	1	0
2	1.61538461538462	0.615384615384615
3	1.64725209603725	0.031867480652638
4	1.64809474386592	0.00084264782866228

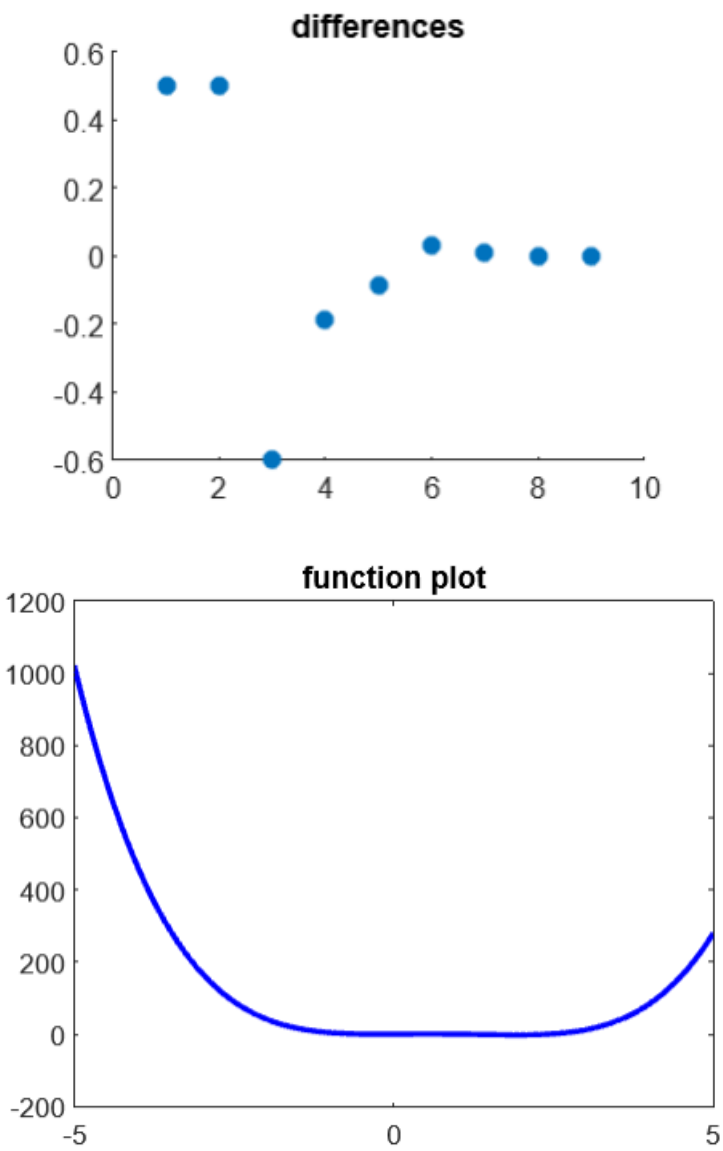
b)



initial guess:-1

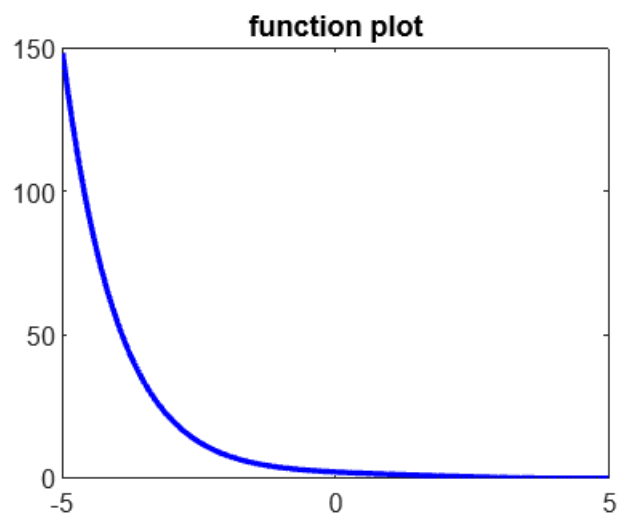
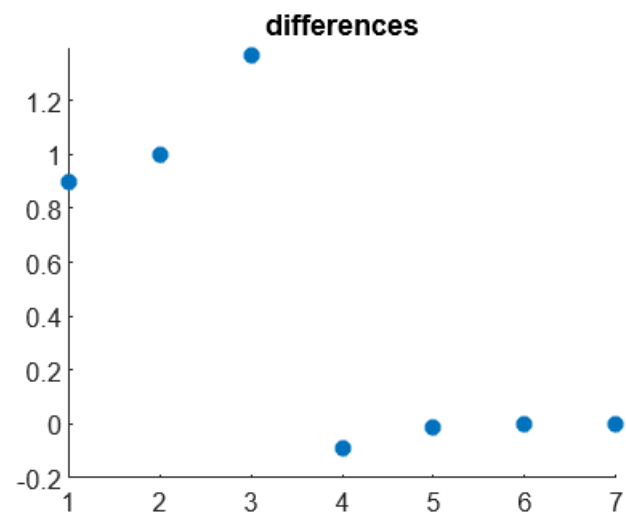
index	iterates	differences
1	-1	0
2	1.06085170098652	2.06085170098652
3	0.602380692576644	0.45847100840988
4	0.206270811593594	0.396109880983049
5	-0.0643093788707607	0.270580190464355
6	-0.170166320549424	0.105856941678663
7	-0.183086594141602	0.0129202735921786
8	-0.183256431101719	0.000169836960116743
9	-0.112943931101719	0.0703125
10	-0.178536428330236	0.0655924972285174
11	-0.183234251526633	0.00469782319639669
12	-0.183256258697789	2.20071711556913e-05
13	-0.18171727100969	0.00153898768809849
14	-0.183254093631993	0.00153682262230254

3.
a.



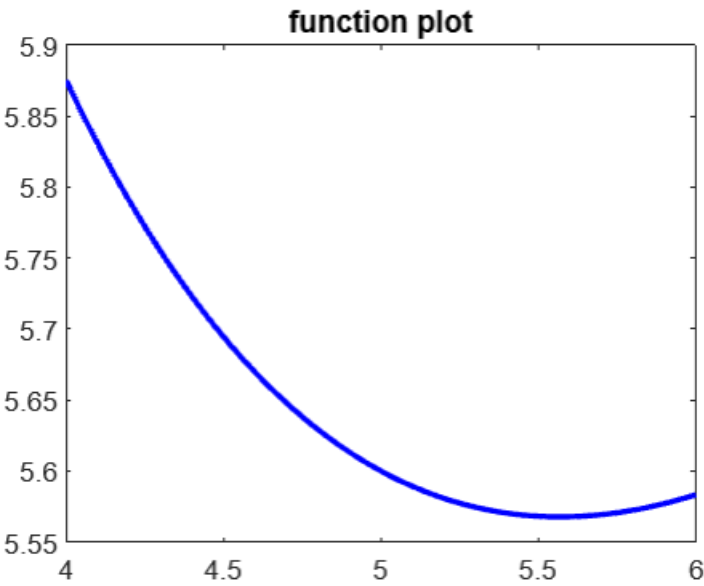
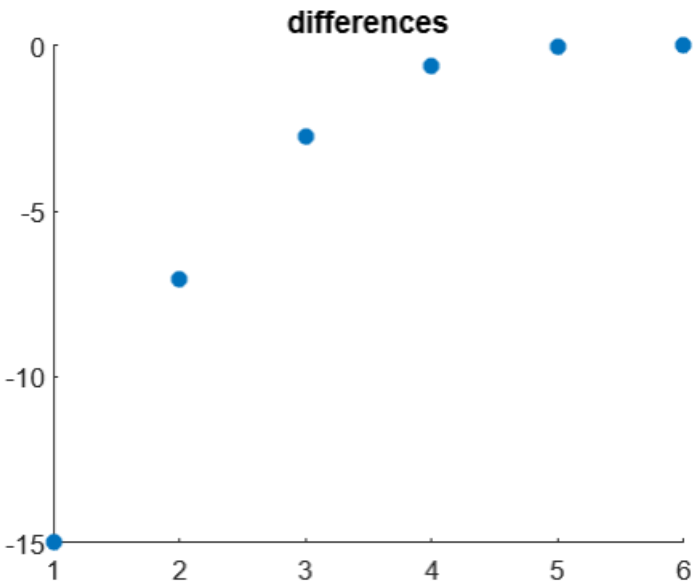
index	iterates	differences
1	-0.5+0i	0
2	0+0i	0.5
3	0.5+0i	0.5
4	-0.1+0.888819441731559i	1.07238052947636
5	-0.288015188127408+0.238253045734442i	0.67719003726226
6	-0.374412423140205+0.37423513038506i	0.161107447263572
7	-0.34704042686669+0.452199819954993i	0.0826300127056344
8	-0.339216745885553+0.446498527604033i	0.00968063626864031
9	-0.339092991557971+0.446630131239013i	0.000180650630597248
10	-0.339092837761721+0.446630099997823i	1.56937244347831e-07

b.



initial estimates: 0.1 1 2		
index	iterates	differences
1	0.1	0
2	1	0.9
3	2	1
4	3.37133382866917	1.37133382866917
5	3.28045977760569	0.090874051063484
6	3.26641184575812	0.0140479318475699
7	3.2650043269662	8.85869385052196e-05
8	3.2650043678562	4.08900202586437e-09

4. here $g(x)=1/2(x+(31/x))$ and $x_0=31$
the function plot also corresponds to $g(x)$



index	iterates	differences
1	31	0
2	16	15
3	8.96875	7.03125
4	6.21259799651568	2.75615200348432
5	5.60122946192105	0.611368534594629
6	5.56786433310126	0.0333651288197885
7	5.5677643637275	9.99693737639973e-05