



Command Window

```
>> Q1
```

Bisection method for root:

Iteration#	xl	xu	xr	f(xl)	f(xu)	f(xr)	error_a%
0	-20.0000	20.0000	-20.0000	-10960.3500	5359.6500	-10960.3500	100.0000
1	0.0000	20.0000	0.0000	-0.3500	5359.6500	-0.3500	100.0000
2	0.0000	10.0000	10.0000	-0.3500	379.6500	379.6500	100.0000
3	5.0000	10.0000	5.0000	-10.3500	379.6500	-10.3500	100.0000
4	5.0000	7.5000	7.5000	-10.3500	87.7750	87.7750	33.3333
5	5.0000	6.2500	6.2500	-10.3500	20.3531	20.3531	20.0000
6	5.0000	5.6250	5.6250	-10.3500	1.1441	1.1441	11.1111
7	5.3125	5.6250	5.3125	-5.4757	1.1441	-5.4757	5.8824
8	5.4688	5.6250	5.4688	-2.3954	1.1441	-2.3954	2.8571
9	5.5469	5.6250	5.5469	-0.6845	1.1441	-0.6845	1.4085
10	5.5469	5.5859	5.5859	-0.6845	0.2149	0.2149	0.6993
11	5.5664	5.5859	5.5664	-0.2385	0.2149	-0.2385	0.3509
12	5.5762	5.5859	5.5762	-0.0127	0.2149	-0.0127	0.1751
13	5.5762	5.5811	5.5811	-0.0127	0.1009	0.1009	0.0875
14	5.5762	5.5786	5.5786	-0.0127	0.0440	0.0440	0.0438

False Position method for root:

Iteration#	x0	x1	f(x0)	f(x1)
0	0.0000	6.0000	-0.3500	11.6500
1	0.0000	0.1750	-0.3500	0.8410
2	0.0000	0.0514	-0.3500	0.0430
3	0.0000	0.0458	-0.3500	0.0018
4	0.0000	0.0456	-0.3500	0.0001
5	0.0000	0.0456	-0.3500	0.0000
6	0.0000	0.0456	-0.3500	0.0000

ans =

0.0456

Secant method for root:

Iteration#	x0	x1	f(x0)	f(x1)
0	6.0000	0.0000	11.6500	-0.3500
1	0.0000	0.1750	-0.3500	0.8410
2	0.1750	0.0514	0.8410	0.0430
3	0.0514	0.0448	0.0430	-0.0058
4	0.0448	0.0456	-0.0058	0.0000
5	0.0456	0.0456	0.0000	0.0000

ans =

0.0456

Newton-Raphson method for root:

Iteration#	xr	f(xr)
0	0.0000	-0.3500
Iteration#	xr	f(xr)
1	0.0437	-0.0133
Iteration#	xr	f(xr)
2	0.0456	-0.0000
Iteration#	xr	f(xr)
3	0.0456	-0.0000
Iteration#	xr	f(xr)
4	0.0456	0.0000

Summary:

The smallest root was 0.0456. The Newton-Raphson method had the smallest amount of iterations. The most accurate one was probably the Bisection method.