

Test Case	Input	Expected Output	Actual Output	Pass?
1a	1	3 random digits	6 0 7	Yes
1b	1	3 random digits	0 1 3	Yes
1c	2	4 random digits	4 3 6 8	Yes
1d	2	4 random digits	6 3 7 4	Yes
1e	#	Error	Error	Should be handled by exceptions for the future
1f	95	Since not 3 keep looping	Since not 3 keep looping	Yes
1g	3	Exit program	Exit program	Yes

```
**** Welcome to the Pick-3, Pick-4 lottery number generator ****
Select from the following menu:
1. Generate 3-Digit Lottery number
2. Generate 4-Digit Lottery number
3. Exit the Application
1
You selected 1. The following 3-digit lottery number was generated:
6 0 7
Select from the following menu:
1. Generate 3-Digit Lottery number
2. Generate 4-Digit Lottery number
3. Exit the Application

```

Figure 1. Test Case 1a Execution results

```
**** Welcome to the Pick-3, Pick-4 lottery number generator ****
Select from the following menu:
1. Generate 3-Digit Lottery number
2. Generate 4-Digit Lottery number
3. Exit the Application
1
You selected 1. The following 3-digit lottery number was generated:
0 1 3
Select from the following menu:
1. Generate 3-Digit Lottery number
2. Generate 4-Digit Lottery number
3. Exit the Application

```

Figure 2. Test Case 1b Execution results

```
**** Welcome to the Pick-3, Pick-4 lottery number generator ****
Select from the following menu:
1. Generate 3-Digit Lottery number
2. Generate 4-Digit Lottery number
3. Exit the Application
2
You selected 2. The following 4-digit lottery number was generated:
4 3 6 8
Select from the following menu:
1. Generate 3-Digit Lottery number
2. Generate 4-Digit Lottery number
3. Exit the Application

```

Figure 3. Test Case 1c Execution results

```

**** Welcome to the Pick-3, Pick-4 lottery number generator ****
Select from the following menu:
1. Generate 3-Digit Lottery number
2. Generate 4-Digit Lottery number
3. Exit the Application
2
You selected 2. The following 4-digit lottery number was generated:
6 3 7 4
Select from the following menu:
1. Generate 3-Digit Lottery number
2. Generate 4-Digit Lottery number
3. Exit the Application

```

Figure 4. Test Case 1d Execution results

```

Select from the following menu:
1. Generate 3-Digit Lottery number
2. Generate 4-Digit Lottery number
3. Exit the Application
#
Traceback (most recent call last):
  File "/home/ec2-user/environment/Lab2/Lottery.py", line 22, in <module>
    feedback=int(input(""))
ValueError: invalid literal for int() with base 10: '#'

Process exited with code: 0

```

Figure 5. Test Case 1e Execution results

```

**** Welcome to the Pick-3, Pick-4 lottery number generator ****
Select from the following menu:
1. Generate 3-Digit Lottery number
2. Generate 4-Digit Lottery number
3. Exit the Application
95
Select from the following menu:
1. Generate 3-Digit Lottery number
2. Generate 4-Digit Lottery number
3. Exit the Application

```

Figure 6. Test Case 1f Execution results

```

**** Welcome to the Pick-3, Pick-4 lottery number generator ****
Select from the following menu:
1. Generate 3-Digit Lottery number
2. Generate 4-Digit Lottery number
3. Exit the Application
3
You selected 3.
Thanks for trying the Lottery Application.
*****

Process exited with code: 0

```

Figure 7. Test Case 1g Execution results

<b>sin(x)</b>	
<b>X</b>	<b>f(x)</b>
-6.2831853	2.45E-16
-6.2340979	0.04906767
-6.1850105	0.09801714
-6.1359232	0.14673047
-6.0868358	0.19509032
-6.0377484	0.24298018
-5.988661	0.29028468
-5.9395736	0.33688985
-5.8904862	0.38268343
-5.8413988	0.42755509
-5.7923115	0.47139674
-5.7432241	0.51410274
-5.6941367	0.55557023
-5.6450493	0.5956993
-5.5959619	0.63439328
-5.5468745	0.67155895
-5.4977871	0.70710678
-5.4486998	0.74095113
-5.3996124	0.77301045
-5.350525	0.80320753
-5.3014376	0.83146961
-5.2523502	0.85772861
-5.2032628	0.88192126
-5.1541754	0.90398929

-5.1050881	0.92387953
-5.0560007	0.94154407
-5.0069133	0.95694034
-4.9578259	0.97003125
-4.9087385	0.98078528
-4.8596511	0.98917651
-4.8105638	0.99518473
-4.7614764	0.99879546
-4.712389	1
-4.6633016	0.99879546
-4.6142142	0.99518473
-4.5651268	0.98917651
-4.5160394	0.98078528
-4.4669521	0.97003125
-4.4178647	0.95694034
-4.3687773	0.94154407
-4.3196899	0.92387953
-4.2706025	0.90398929
-4.2215151	0.88192126
-4.1724277	0.85772861
-4.1233404	0.83146961
-4.074253	0.80320753
-4.0251656	0.77301045
-3.9760782	0.74095113
-3.9269908	0.70710678
-3.8779034	0.67155895
-3.828816	0.63439328
-3.7797287	0.5956993
-3.7306413	0.55557023
-3.6815539	0.51410274
-3.6324665	0.47139674
-3.5833791	0.42755509
-3.5342917	0.38268343
-3.4852044	0.33688985
-3.436117	0.29028468
-3.3870296	0.24298018
-3.3379422	0.19509032
-3.2888548	0.14673047
-3.2397674	0.09801714
-3.19068	0.04906767

-3.1415927	1.05E-14
-3.0925053	-0.0490677
-3.0434179	-0.0980171
-2.9943305	-0.1467305
-2.9452431	-0.1950903
-2.8961557	-0.2429802
-2.8470683	-0.2902847
-2.797981	-0.3368899
-2.7488936	-0.3826834
-2.6998062	-0.4275551
-2.6507188	-0.4713967
-2.6016314	-0.5141027
-2.552544	-0.5555702
-2.5034566	-0.5956993
-2.4543693	-0.6343933
-2.4052819	-0.671559
-2.3561945	-0.7071068
-2.3071071	-0.7409511
-2.2580197	-0.7730105
-2.2089323	-0.8032075
-2.1598449	-0.8314696
-2.1107576	-0.8577286
-2.0616702	-0.8819213
-2.0125828	-0.9039893
-1.9634954	-0.9238795
-1.914408	-0.9415441
-1.8653206	-0.9569403
-1.8162333	-0.9700313
-1.7671459	-0.9807853
-1.7180585	-0.9891765
-1.6689711	-0.9951847
-1.6198837	-0.9987955
-1.5707963	-1
-1.5217089	-0.9987955
-1.4726216	-0.9951847
-1.4235342	-0.9891765
-1.3744468	-0.9807853
-1.3253594	-0.9700313
-1.276272	-0.9569403
-1.2271846	-0.9415441

-1.1780972	-0.9238795
-1.1290099	-0.9039893
-1.0799225	-0.8819213
-1.0308351	-0.8577286
-0.9817477	-0.8314696
-0.9326603	-0.8032075
-0.8835729	-0.7730105
-0.8344855	-0.7409511
-0.7853982	-0.7071068
-0.7363108	-0.671559
-0.6872234	-0.6343933
-0.638136	-0.5956993
-0.5890486	-0.5555702
-0.5399612	-0.5141027
-0.4908739	-0.4713967
-0.4417865	-0.4275551
-0.3926991	-0.3826834
-0.3436117	-0.3368899
-0.2945243	-0.2902847
-0.2454369	-0.2429802
-0.1963495	-0.1950903
-0.1472622	-0.1467305
-0.0981748	-0.0980171
-0.0490874	-0.0490677
-1.28E-14	-1.28E-14
0.04908739	0.04906767
0.09817477	0.09801714
0.14726216	0.14673047
0.19634954	0.19509032
0.24543693	0.24298018
0.29452431	0.29028468
0.3436117	0.33688985
0.39269908	0.38268343
0.44178647	0.42755509
0.49087385	0.47139674
0.53996124	0.51410274
0.58904862	0.55557023
0.63813601	0.5956993
0.68722339	0.63439328
0.73631078	0.67155895

0.78539816	0.70710678
0.83448555	0.74095113
0.88357293	0.77301045
0.93266032	0.80320753
0.9817477	0.83146961
1.03083509	0.85772861
1.07992247	0.88192126
1.12900986	0.90398929
1.17809725	0.92387953
1.22718463	0.94154407
1.27627202	0.95694034
1.3253594	0.97003125
1.37444679	0.98078528
1.42353417	0.98917651
1.47262156	0.99518473
1.52170894	0.99879546
1.57079633	1
1.61988371	0.99879546
1.6689711	0.99518473
1.71805848	0.98917651
1.76714587	0.98078528
1.81623325	0.97003125
1.86532064	0.95694034
1.91440802	0.94154407
1.96349541	0.92387953
2.01258279	0.90398929
2.06167018	0.88192126
2.11075756	0.85772861
2.15984495	0.83146961
2.20893233	0.80320753
2.25801972	0.77301045
2.3071071	0.74095113
2.35619449	0.70710678
2.40528188	0.67155895
2.45436926	0.63439328
2.50345665	0.5956993
2.55254403	0.55557023
2.60163142	0.51410274
2.6507188	0.47139674
2.69980619	0.42755509



2.74889357	0.38268343
2.79798096	0.33688985
2.84706834	0.29028468
2.89615573	0.24298018
2.94524311	0.19509032
2.9943305	0.14673047
3.04341788	0.09801714
3.09250527	0.04906767
3.14159265	1.52E-14
3.19068004	-0.0490677
3.23976742	-0.0980171
3.28885481	-0.1467305
3.33794219	-0.1950903
3.38702958	-0.2429802
3.43611696	-0.2902847
3.48520435	-0.3368899
3.53429174	-0.3826834
3.58337912	-0.4275551
3.63246651	-0.4713967
3.68155389	-0.5141027
3.73064128	-0.5555702
3.77972866	-0.5956993
3.82881605	-0.6343933
3.87790343	-0.671559
3.92699082	-0.7071068
3.9760782	-0.7409511
4.02516559	-0.7730105
4.07425297	-0.8032075
4.12334036	-0.8314696
4.17242774	-0.8577286
4.22151513	-0.8819213
4.27060251	-0.9039893
4.3196899	-0.9238795
4.36877728	-0.9415441
4.41786467	-0.9569403
4.46695205	-0.9700313
4.51603944	-0.9807853
4.56512682	-0.9891765
4.61421421	-0.9951847
4.6633016	-0.9987955

4.71238898	-1
4.76147637	-0.9987955
4.81056375	-0.9951847
4.85965114	-0.9891765
4.90873852	-0.9807853
4.95782591	-0.9700313
5.00691329	-0.9569403
5.05600068	-0.9415441
5.10508806	-0.9238795
5.15417545	-0.9039893
5.20326283	-0.8819213
5.25235022	-0.8577286
5.3014376	-0.8314696
5.35052499	-0.8032075
5.39961237	-0.7730105
5.44869976	-0.7409511
5.49778714	-0.7071068
5.54687453	-0.671559
5.59596191	-0.6343933
5.6450493	-0.5956993
5.69413668	-0.5555702
5.74322407	-0.5141027
5.79231146	-0.4713967
5.84139884	-0.4275551
5.89048623	-0.3826834
5.93957361	-0.3368899
5.988661	-0.2902847
6.03774838	-0.2429802
6.08683577	-0.1950903
6.13592315	-0.1467305
6.18501054	-0.0980171
6.23409792	-0.0490677
6.28318531	-2.60E-14

<b>X</b>	<b>cos(x)</b> <b>f(x)</b>
-6.2831853	1
-6.2340979	0.99879546
-6.1850105	0.99518473

-6.1359232	0.98917651
-6.0868358	0.98078528
-6.0377484	0.97003125
-5.988661	0.95694034
-5.9395736	0.94154407
-5.8904862	0.92387953
-5.8413988	0.90398929
-5.7923115	0.88192126
-5.7432241	0.85772861
-5.6941367	0.83146961
-5.6450493	0.80320753
-5.5959619	0.77301045
-5.5468745	0.74095113
-5.4977871	0.70710678
-5.4486998	0.67155895
-5.3996124	0.63439328
-5.350525	0.5956993
-5.3014376	0.55557023
-5.2523502	0.51410274
-5.2032628	0.47139674
-5.1541754	0.42755509
-5.1050881	0.38268343
-5.0560007	0.33688985
-5.0069133	0.29028468
-4.9578259	0.24298018
-4.9087385	0.19509032
-4.8596511	0.14673047
-4.8105638	0.09801714
-4.7614764	0.04906767
-4.712389	5.15E-15
-4.6633016	-0.0490677
-4.6142142	-0.0980171
-4.5651268	-0.1467305
-4.5160394	-0.1950903
-4.4669521	-0.2429802
-4.4178647	-0.2902847
-4.3687773	-0.3368899
-4.3196899	-0.3826834
-4.2706025	-0.4275551
-4.2215151	-0.4713967

-4.1724277	-0.5141027
-4.1233404	-0.5555702
-4.074253	-0.5956993
-4.0251656	-0.6343933
-3.9760782	-0.671559
-3.9269908	-0.7071068
-3.8779034	-0.7409511
-3.828816	-0.7730105
-3.7797287	-0.8032075
-3.7306413	-0.8314696
-3.6815539	-0.8577286
-3.6324665	-0.8819213
-3.5833791	-0.9039893
-3.5342917	-0.9238795
-3.4852044	-0.9415441
-3.436117	-0.9569403
-3.3870296	-0.9700313
-3.3379422	-0.9807853
-3.2888548	-0.9891765
-3.2397674	-0.9951847
-3.19068	-0.9987955
-3.1415927	-1
-3.0925053	-0.9987955
-3.0434179	-0.9951847
-2.9943305	-0.9891765
-2.9452431	-0.9807853
-2.8961557	-0.9700313
-2.8470683	-0.9569403
-2.797981	-0.9415441
-2.7488936	-0.9238795
-2.6998062	-0.9039893
-2.6507188	-0.8819213
-2.6016314	-0.8577286
-2.552544	-0.8314696
-2.5034566	-0.8032075
-2.4543693	-0.7730105
-2.4052819	-0.7409511
-2.3561945	-0.7071068
-2.3071071	-0.671559
-2.2580197	-0.6343933

-2.2089323	-0.5956993
-2.1598449	-0.5555702
-2.1107576	-0.5141027
-2.0616702	-0.4713967
-2.0125828	-0.4275551
-1.9634954	-0.3826834
-1.914408	-0.3368899
-1.8653206	-0.2902847
-1.8162333	-0.2429802
-1.7671459	-0.1950903
-1.7180585	-0.1467305
-1.6689711	-0.0980171
-1.6198837	-0.0490677
-1.5707963	-1.39E-01
-1.5217089	0.04906767
-1.4726216	0.09801714
-1.4235342	0.14673047
-1.3744468	0.19509032
-1.3253594	0.24298018
-1.276272	0.29028468
-1.2271846	0.33688985
-1.1780972	0.38268343
-1.1290099	0.42755509
-1.0799225	0.47139674
-1.0308351	0.51410274
-0.9817477	0.55557023
-0.9326603	0.5956993
-0.8835729	0.63439328
-0.8344855	0.67155895
-0.7853982	0.70710678
-0.7363108	0.74095113
-0.6872234	0.77301045
-0.638136	0.80320753
-0.5890486	0.83146961
-0.5399612	0.85772861
-0.4908739	0.88192126
-0.4417865	0.90398929
-0.3926991	0.92387953
-0.3436117	0.94154407
-0.2945243	0.95694034

-0.2454369	0.97003125
-0.1963495	0.98078528
-0.1472622	0.98917651
-0.0981748	0.99518473
-0.0490874	0.99879546
-1.28E-14	1
0.04908739	0.99879546
0.09817477	0.99518473
0.14726216	0.98917651
0.19634954	0.98078528
0.24543693	0.97003125
0.29452431	0.95694034
0.3436117	0.94154407
0.39269908	0.92387953
0.44178647	0.90398929
0.49087385	0.88192126
0.53996124	0.85772861
0.58904862	0.83146961
0.63813601	0.80320753
0.68722339	0.77301045
0.73631078	0.74095113
0.78539816	0.70710678
0.83448555	0.67155895
0.88357293	0.63439328
0.93266032	0.5956993
0.9817477	0.55557023
1.03083509	0.51410274
1.07992247	0.47139674
1.12900986	0.42755509
1.17809725	0.38268343
1.22718463	0.33688985
1.27627202	0.29028468
1.3253594	0.24298018
1.37444679	0.19509032
1.42353417	0.14673047
1.47262156	0.09801714
1.52170894	0.04906767
1.57079633	1.18E-14
1.61988371	-0.0490677
1.6689711	-0.0980171

1.71805848	-0.1467305
1.76714587	-0.1950903
1.81623325	-0.2429802
1.86532064	-0.2902847
1.91440802	-0.3368899
1.96349541	-0.3826834
2.01258279	-0.4275551
2.06167018	-0.4713967
2.11075756	-0.5141027
2.15984495	-0.5555702
2.20893233	-0.5956993
2.25801972	-0.6343933
2.3071071	-0.671559
2.35619449	-0.7071068
2.40528188	-0.7409511
2.45436926	-0.7730105
2.50345665	-0.8032075
2.55254403	-0.8314696
2.60163142	-0.8577286
2.6507188	-0.8819213
2.69980619	-0.9039893
2.74889357	-0.9238795
2.79798096	-0.9415441
2.84706834	-0.9569403
2.89615573	-0.9700313
2.94524311	-0.9807853
2.9943305	-0.9891765
3.04341788	-0.9951847
3.09250527	-0.9987955
3.14159265	-1
3.19068004	-0.9987955
3.23976742	-0.9951847
3.28885481	-0.9891765
3.33794219	-0.9807853
3.38702958	-0.9700313
3.43611696	-0.9569403
3.48520435	-0.9415441
3.53429174	-0.9238795
3.58337912	-0.9039893
3.63246651	-0.8819213

3.68155389	-0.8577286
3.73064128	-0.8314696
3.77972866	-0.8032075
3.82881605	-0.7730105
3.87790343	-0.7409511
3.92699082	-0.7071068
3.9760782	-0.671559
4.02516559	-0.6343933
4.07425297	-0.5956993
4.12334036	-0.5555702
4.17242774	-0.5141027
4.22151513	-0.4713967
4.27060251	-0.4275551
4.3196899	-0.3826834
4.36877728	-0.3368899
4.41786467	-0.2902847
4.46695205	-0.2429802
4.51603944	-0.1950903
4.56512682	-0.1467305
4.61421421	-0.0980171
4.6633016	-0.0490677
4.71238898	-2.06E-14
4.76147637	0.04906767
4.81056375	0.09801714
4.85965114	0.14673047
4.90873852	0.19509032
4.95782591	0.24298018
5.00691329	0.29028468
5.05600068	0.33688985
5.10508806	0.38268343
5.15417545	0.42755509
5.20326283	0.47139674
5.25235022	0.51410274
5.3014376	0.55557023
5.35052499	0.5956993
5.39961237	0.63439328
5.44869976	0.67155895
5.49778714	0.70710678
5.54687453	0.74095113
5.59596191	0.77301045



5.6450493	0.80320753
5.69413668	0.83146961
5.74322407	0.85772861
5.79231146	0.88192126
5.84139884	0.90398929
5.89048623	0.92387953
5.93957361	0.94154407
5.988661	0.95694034
6.03774838	0.97003125
6.08683577	0.98078528
6.13592315	0.98917651
6.18501054	0.99518473
6.23409792	0.99879546
6.28318531	1

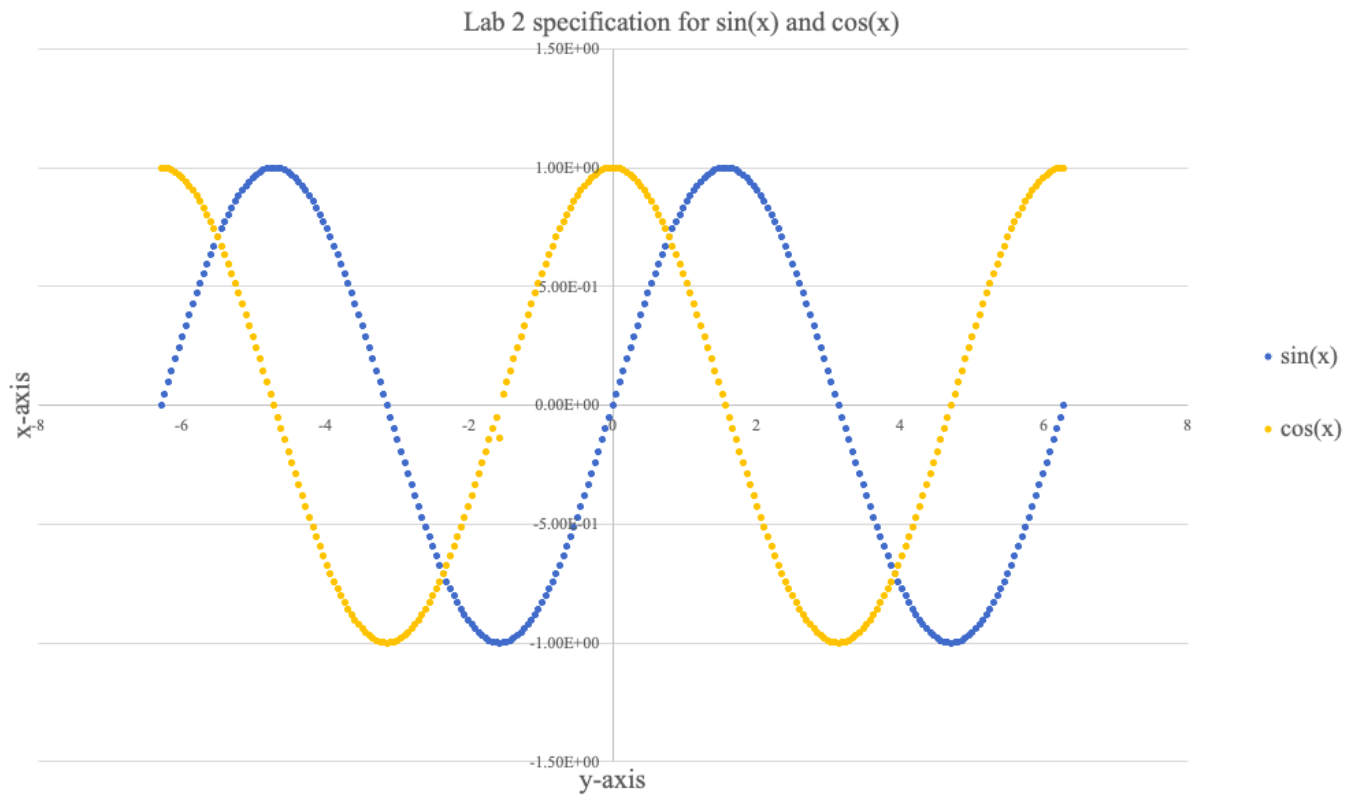


Figure 8. A  $\sin(x)$  and  $\cos(x)$  graph from the above set of points

**sqrt(x)**  
**x      f(x)**

0	0
0.5	0.70710678
1	1
1.5	1.22474487
2	1.41421356
2.5	1.58113883
3	1.73205081
3.5	1.87082869
4	2
4.5	2.12132034
5	2.23606798
5.5	2.34520788
6	2.44948974
6.5	2.54950976
7	2.64575131
7.5	2.73861279
8	2.82842712
8.5	2.91547595
9	3
9.5	3.082207
10	3.16227766
10.5	3.24037035
11	3.31662479
11.5	3.39116499
12	3.46410162
12.5	3.53553391
13	3.60555128
13.5	3.67423461
14	3.74165739
14.5	3.80788655
15	3.87298335
15.5	3.93700394
16	4
16.5	4.0620192
17	4.12310563
17.5	4.18330013
18	4.24264069
18.5	4.30116263
19	4.35889894
19.5	4.41588043

20	4.47213595
20.5	4.52769257
21	4.58257569
21.5	4.63680925
22	4.69041576
22.5	4.74341649
23	4.79583152
23.5	4.84767986
24	4.89897949
24.5	4.94974747
25	5
25.5	5.04975247
26	5.09901951
26.5	5.14781507
27	5.19615242
27.5	5.24404424
28	5.29150262
28.5	5.33853913
29	5.38516481
29.5	5.43139025
30	5.47722558
30.5	5.52268051
31	5.56776436
31.5	5.61248608
32	5.65685425
32.5	5.70087713
33	5.74456265
33.5	5.78791845
34	5.83095189
34.5	5.87367006
35	5.91607978
35.5	5.95818764
36	6
36.5	6.04152299
37	6.08276253
37.5	6.12372436
38	6.164414
38.5	6.20483682
39	6.244998
39.5	6.28490254

40	6.32455532
40.5	6.36396103
41	6.40312424
41.5	6.44204936
42	6.4807407
42.5	6.51920241
43	6.55743852
43.5	6.59545298
44	6.63324958
44.5	6.67083203
45	6.70820393
45.5	6.74536878
46	6.78232998
46.5	6.81909085
47	6.8556546
47.5	6.89202438
48	6.92820323
48.5	6.96419414
49	7
49.5	7.03562364
50	7.07106781
50.5	7.1063352
51	7.14142843
51.5	7.17635005
52	7.21110255
52.5	7.24568837
53	7.28010989
53.5	7.31436942
54	7.34846923
54.5	7.38241153
55	7.41619849
55.5	7.44983221
56	7.48331477
56.5	7.51664819
57	7.54983444
57.5	7.58287544
58	7.61577311
58.5	7.64852927
59	7.68114575
59.5	7.71362431

60	7.74596669
60.5	7.77817459
61	7.81024968
61.5	7.84219357
62	7.87400787
62.5	7.90569415
63	7.93725393
63.5	7.96868873
64	8
64.5	8.0311892
65	8.06225775
65.5	8.09320703
66	8.1240384
66.5	8.15475322
67	8.18535277
67.5	8.21583836
68	8.24621125
68.5	8.27647268
69	8.30662386
69.5	8.336666
70	8.36660027
70.5	8.39642781
71	8.42614977
71.5	8.45576726
72	8.48528137
72.5	8.51469318
73	8.54400375
73.5	8.5732141
74	8.60232527
74.5	8.63133825
75	8.66025404
75.5	8.6890736
76	8.71779789
76.5	8.74642784
77	8.77496439
77.5	8.80340843
78	8.83176087
78.5	8.86002257
79	8.88819442
79.5	8.91627725

80	8.94427191
80.5	8.97217922
81	9
81.5	9.02773504
82	9.05538514
82.5	9.08295106
83	9.11043358
83.5	9.13783344
84	9.16515139
84.5	9.19238816
85	9.21954446
85.5	9.246621
86	9.2736185
86.5	9.30053762
87	9.32737905
87.5	9.35414347
88	9.38083152
88.5	9.40744386
89	9.43398113
89.5	9.46044396
90	9.48683298
90.5	9.5131488
91	9.53939201
91.5	9.56556323
92	9.59166305
92.5	9.61769203
93	9.64365076
93.5	9.6695398
94	9.69535971
94.5	9.72111105
95	9.74679434
95.5	9.77241014
96	9.79795897
96.5	9.82344135
97	9.8488578
97.5	9.87420883
98	9.89949494
98.5	9.92471662
99	9.94987437
99.5	9.97496867

100	10
100.5	10.0249688
101	10.0498756
101.5	10.0747208
102	10.0995049
102.5	10.1242284
103	10.1488916
103.5	10.173495
104	10.198039
104.5	10.2225242
105	10.2469508
105.5	10.2713193
106	10.2956301
106.5	10.3198837
107	10.3440804
107.5	10.3682207
108	10.3923048
108.5	10.4163333
109	10.4403065
109.5	10.4642248
110	10.4880885
110.5	10.511898
111	10.5356538
111.5	10.559356
112	10.5830052
112.5	10.6066017
113	10.6301458
113.5	10.6536379
114	10.6770783
114.5	10.7004673
115	10.7238053
115.5	10.7470926
116	10.7703296
116.5	10.7935166
117	10.8166538
117.5	10.8397417
118	10.8627805
118.5	10.8857705
119	10.9087121
119.5	10.9316056

120	10.9544512
120.5	10.9772492
121	11
121.5	11.0227038
122	11.045361
122.5	11.0679718
123	11.0905365
123.5	11.1130554
124	11.1355287
124.5	11.1579568
125	11.1803399
125.5	11.2026783
126	11.2249722
126.5	11.2472219
127	11.2694277
127.5	11.2915898
128	11.3137085
128.5	11.335784
129	11.3578167
129.5	11.3798067
130	11.4017543
130.5	11.4236597
131	11.4455231
131.5	11.4673449
132	11.4891253
132.5	11.5108644
133	11.5325626
133.5	11.55422
134	11.5758369
134.5	11.5974135
135	11.61895
135.5	11.6404467
136	11.6619038
136.5	11.6833214
137	11.7046999
137.5	11.7260394
138	11.7473401
138.5	11.7686023
139	11.7898261
139.5	11.8110118



140	11.8321596
140.5	11.8532696
141	11.8743421
141.5	11.8953773
142	11.9163753
142.5	11.9373364
143	11.9582607
143.5	11.9791486
144	12
144.5	12.0208153
145	12.0415946
145.5	12.0623381
146	12.083046
146.5	12.1037184
147	12.1243557
147.5	12.1449578
148	12.1655251
148.5	12.1860576
149	12.2065556
149.5	12.2270193
150	12.2474487
150.5	12.2678441
151	12.2882057
151.5	12.3085336
152	12.328828
152.5	12.349089
153	12.3693169
153.5	12.3895117
154	12.4096736
154.5	12.4298029
155	12.4498996
155.5	12.4699639
156	12.489996
156.5	12.509996
157	12.5299641
157.5	12.5499004
158	12.5698051
158.5	12.5896783
159	12.6095202
159.5	12.6293309

160	12.6491106
160.5	12.6688595
161	12.6885775
161.5	12.708265
162	12.7279221
162.5	12.7475488
163	12.7671453
163.5	12.7867119
164	12.8062485
164.5	12.8257553
165	12.8452326
165.5	12.8646803
166	12.8840987
166.5	12.9034879
167	12.922848
167.5	12.9421791
168	12.9614814
168.5	12.980755
169	13
169.5	13.0192166
170	13.0384048
170.5	13.0575649
171	13.0766968
171.5	13.0958009
172	13.114877
172.5	13.1339255
173	13.1529464
173.5	13.1719399
174	13.190906
174.5	13.2098448
175	13.2287566
175.5	13.2476413
176	13.2664992
176.5	13.2853303
177	13.3041347
177.5	13.3229126
178	13.3416641
178.5	13.3603892
179	13.3790882
179.5	13.397761

180	13.4164079
180.5	13.4350288
181	13.453624
181.5	13.4721936
182	13.4907376
182.5	13.5092561
183	13.5277493
183.5	13.5462172
184	13.56466
184.5	13.5830777
185	13.6014705
185.5	13.6198385
186	13.6381817
186.5	13.6565003
187	13.6747943
187.5	13.6930639
188	13.7113092
188.5	13.7295302
189	13.7477271
189.5	13.7658999
190	13.7840488
190.5	13.8021737
191	13.820275
191.5	13.8383525
192	13.8564065
192.5	13.8744369
193	13.892444
193.5	13.9104277
194	13.9283883
194.5	13.9463257
195	13.96424
195.5	13.9821315
196	14
196.5	14.0178458
197	14.0356688
197.5	14.0534693
198	14.0712473
198.5	14.0890028
199	14.106736
199.5	14.1244469

200 14.1421356

**log10(x)**  
**x f(x)**

1	0
1.5	0.176091
2	0.30103
2.5	0.39794
3	0.477121
3.5	0.544068
4	0.60206
4.5	0.653213
5	0.69897
5.5	0.740363
6	0.778151
6.5	0.812913
7	0.845098
7.5	0.875061
8	0.90309
8.5	0.929419
9	0.954243
9.5	0.977724
10	1
10.5	1.021189
11	1.041393
11.5	1.060698
12	1.079181
12.5	1.09691
13	1.113943
13.5	1.130334
14	1.146128
14.5	1.161368
15	1.176091
15.5	1.190332
16	1.20412
16.5	1.217484

17	1.230449
17.5	1.243038
18	1.255273
18.5	1.267172
19	1.278754
19.5	1.290035
20	1.30103
20.5	1.311754
21	1.322219
21.5	1.332438
22	1.342423
22.5	1.352183
23	1.361728
23.5	1.371068
24	1.380211
24.5	1.389166
25	1.39794
25.5	1.40654
26	1.414973
26.5	1.423246
27	1.431364
27.5	1.439333
28	1.447158
28.5	1.454845
29	1.462398
29.5	1.469822
30	1.477121
30.5	1.4843
31	1.491362
31.5	1.498311
32	1.50515
32.5	1.511883
33	1.518514
33.5	1.525045
34	1.531479
34.5	1.537819
35	1.544068
35.5	1.550228

36	1.556303
36.5	1.562293
37	1.568202
37.5	1.574031
38	1.579784
38.5	1.585461
39	1.591065
39.5	1.596597
40	1.60206
40.5	1.607455
41	1.612784
41.5	1.618048
42	1.623249
42.5	1.628389
43	1.633468
43.5	1.638489
44	1.643453
44.5	1.64836
45	1.653213
45.5	1.658011
46	1.662758
46.5	1.667453
47	1.672098
47.5	1.676694
48	1.681241
48.5	1.685742
49	1.690196
49.5	1.694605
50	1.69897
50.5	1.703291
51	1.70757
51.5	1.711807
52	1.716003
52.5	1.720159
53	1.724276
53.5	1.728354
54	1.732394
54.5	1.736397

55	1.740363
55.5	1.744293
56	1.748188
56.5	1.752048
57	1.755875
57.5	1.759668
58	1.763428
58.5	1.767156
59	1.770852
59.5	1.774517
60	1.778151
60.5	1.781755
61	1.78533
61.5	1.788875
62	1.792392
62.5	1.79588
63	1.799341
63.5	1.802774
64	1.80618
64.5	1.80956
65	1.812913
65.5	1.816241
66	1.819544
66.5	1.822822
67	1.826075
67.5	1.829304
68	1.832509
68.5	1.835691
69	1.838849
69.5	1.841985
70	1.845098
70.5	1.848189
71	1.851258
71.5	1.854306
72	1.857332
72.5	1.860338
73	1.863323
73.5	1.866287

74	1.869232
74.5	1.872156
75	1.875061
75.5	1.877947
76	1.880814
76.5	1.883661
77	1.886491
77.5	1.889302
78	1.892095
78.5	1.89487
79	1.897627
79.5	1.900367
80	1.90309
80.5	1.905796
81	1.908485
81.5	1.911158
82	1.913814
82.5	1.916454
83	1.919078
83.5	1.921686
84	1.924279
84.5	1.926857
85	1.929419
85.5	1.931966
86	1.934498
86.5	1.937016
87	1.939519
87.5	1.942008
88	1.944483
88.5	1.946943
89	1.94939
89.5	1.951823
90	1.954243
90.5	1.956649
91	1.959041
91.5	1.961421
92	1.963788
92.5	1.966142



93	1.968483
93.5	1.970812
94	1.973128
94.5	1.975432
95	1.977724
95.5	1.980003
96	1.982271
96.5	1.984527
97	1.986772
97.5	1.989005
98	1.991226
98.5	1.993436
99	1.995635
99.5	1.997823
100	2
100.5	2.002166
101	2.004321
101.5	2.006466
102	2.0086
102.5	2.010724
103	2.012837
103.5	2.01494
104	2.017033
104.5	2.019116
105	2.021189
105.5	2.023252
106	2.025306
106.5	2.02735
107	2.029384
107.5	2.031408
108	2.033424
108.5	2.03543
109	2.037426
109.5	2.039414
110	2.041393
110.5	2.043362
111	2.045323
111.5	2.047275

112	2.049218
112.5	2.051153
113	2.053078
113.5	2.054996
114	2.056905
114.5	2.058805
115	2.060698
115.5	2.062582
116	2.064458
116.5	2.066326
117	2.068186
117.5	2.070038
118	2.071882
118.5	2.073718
119	2.075547
119.5	2.077368
120	2.079181
120.5	2.080987
121	2.082785
121.5	2.084576
122	2.08636
122.5	2.088136
123	2.089905
123.5	2.091667
124	2.093422
124.5	2.095169
125	2.09691
125.5	2.098644
126	2.100371
126.5	2.102091
127	2.103804
127.5	2.10551
128	2.10721
128.5	2.108903
129	2.11059
129.5	2.11227
130	2.113943
130.5	2.115611

131	2.117271
131.5	2.118926
132	2.120574
132.5	2.122216
133	2.123852
133.5	2.125481
134	2.127105
134.5	2.128722
135	2.130334
135.5	2.131939
136	2.133539
136.5	2.135133
137	2.136721
137.5	2.138303
138	2.139879
138.5	2.14145
139	2.143015
139.5	2.144574
140	2.146128
140.5	2.147676
141	2.149219
141.5	2.150756
142	2.152288
142.5	2.153815
143	2.155336
143.5	2.156852
144	2.158362
144.5	2.159868
145	2.161368
145.5	2.162863
146	2.164353
146.5	2.165838
147	2.167317
147.5	2.168792
148	2.170262
148.5	2.171726
149	2.173186
149.5	2.174641

150	2.176091
150.5	2.177536
151	2.178977
151.5	2.180413
152	2.181844
152.5	2.18327
153	2.184691
153.5	2.186108
154	2.187521
154.5	2.188928
155	2.190332
155.5	2.19173
156	2.193125
156.5	2.194514
157	2.1959
157.5	2.197281
158	2.198657
158.5	2.200029
159	2.201397
159.5	2.202761
160	2.20412
160.5	2.205475
161	2.206826
161.5	2.208173
162	2.209515
162.5	2.210853
163	2.212188
163.5	2.213518
164	2.214844
164.5	2.216166
165	2.217484
165.5	2.218798
166	2.220108
166.5	2.221414
167	2.222716
167.5	2.224015
168	2.225309
168.5	2.2266

169	2.227887
169.5	2.22917
170	2.230449
170.5	2.231724
171	2.232996
171.5	2.234264
172	2.235528
172.5	2.236789
173	2.238046
173.5	2.239299
174	2.240549
174.5	2.241795
175	2.243038
175.5	2.244277
176	2.245513
176.5	2.246745
177	2.247973
177.5	2.249198
178	2.25042
178.5	2.251638
179	2.252853
179.5	2.254064
180	2.255273
180.5	2.256477
181	2.257679
181.5	2.258877
182	2.260071
182.5	2.261263
183	2.262451
183.5	2.263636
184	2.264818
184.5	2.265996
185	2.267172
185.5	2.268344
186	2.269513
186.5	2.270679
187	2.271842
187.5	2.273001

188	2.274158
188.5	2.275311
189	2.276462
189.5	2.277609
190	2.278754
190.5	2.279895
191	2.281033
191.5	2.282169
192	2.283301
192.5	2.284431
193	2.285557
193.5	2.286681
194	2.287802
194.5	2.28892
195	2.290035
196	2.292256
196.5	2.293363
197	2.294466
197.5	2.295567
198	2.296665
198.5	2.297761
199	2.298853
199.5	2.299943
200	2.30103

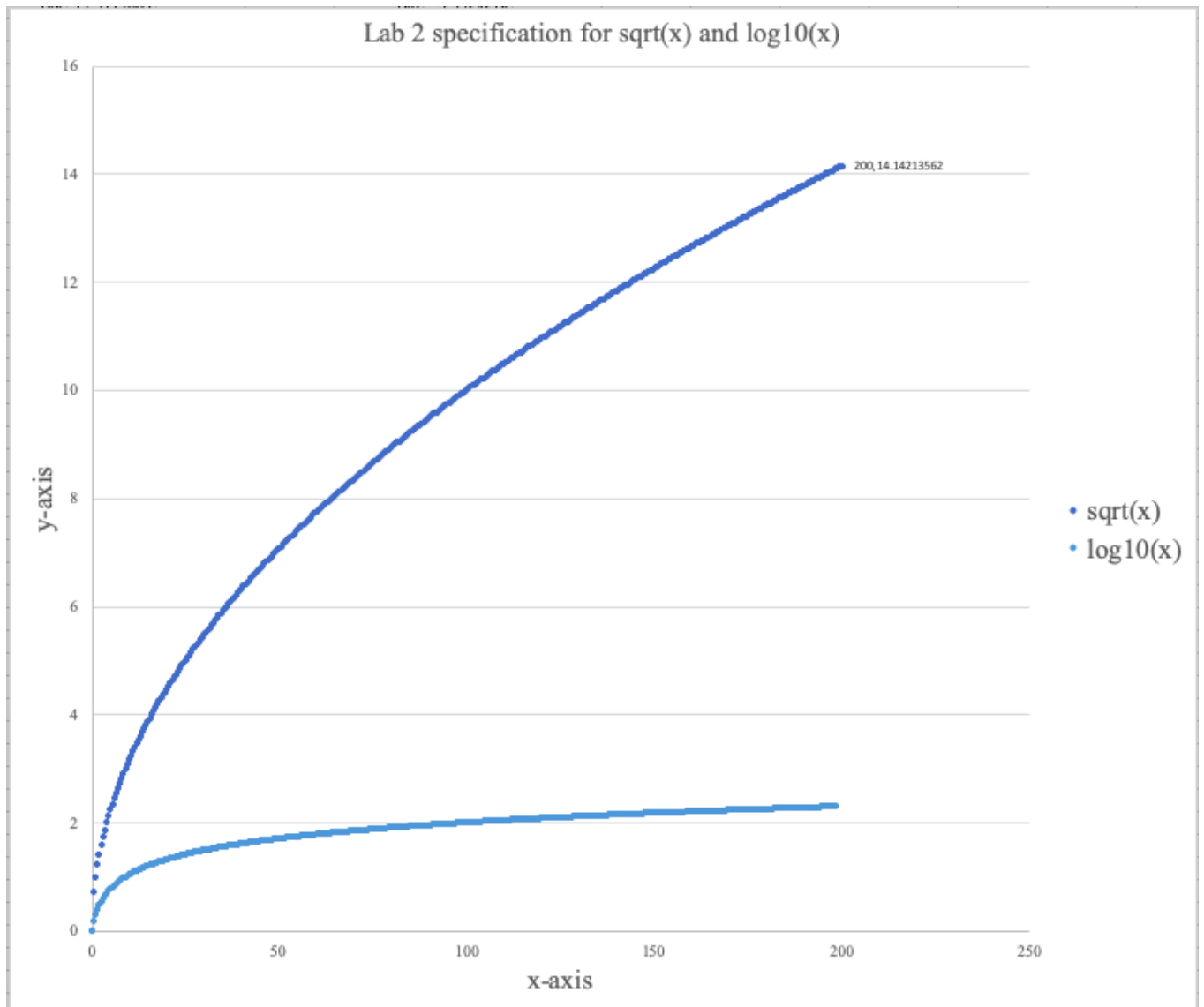


Figure 9.  $\sqrt{x}$  and  $\log_{10}(x)$  graph from the above set of points