Session6

January 29, 2024

Create a Jupyter Notebook where, in separate cells, you define functions that return sin(x) and cos(x).
Use Markdown cells to comment on your Notebook, and describe what each function does. Create a third Python cell that will tabulate sin(x) and cos(x) using these previously defined functions vs. x, where x is tabulated between 0 and 2 with a thousand entries. Write a fourth Python cell that will use a for loop to print out the first 10 values of x, sin(x), and cos(x) in columns.

[32]:
```
import numpy as np
from tabulate import tabulate
```

Function sin(x) and cos(x)

[33]:
```
def sin(x):
    return np.sin(x)
```

[34]:
```
def cos(x):
    return np.cos(x)
```

Create the data for the table and tabulate it.

[35]:
```
x_values = np.arange(0, 2.002, 2/1000)
Tuple_list = []
table_headers = ['x', 'sin(x)', 'cos(x)']

for x in x_values:
    Tuple_list.append((x, sin(x), cos(x)))

print(tabulate(Tuple_list, headers = table_headers, floatfmt = ".3f"))
```

```
    x    sin(x)    cos(x)
-----  --------  --------
0.000     0.000     1.000
0.002     0.002     1.000
0.004     0.004     1.000
0.006     0.006     1.000
0.008     0.008     1.000
0.010     0.010     1.000
0.012     0.012     1.000
0.014     0.014     1.000
0.016     0.016     1.000
```

0.018	0.018	1.000
0.020	0.020	1.000
0.022	0.022	1.000
0.024	0.024	1.000
0.026	0.026	1.000
0.028	0.028	1.000
0.030	0.030	1.000
0.032	0.032	0.999
0.034	0.034	0.999
0.036	0.036	0.999
0.038	0.038	0.999
0.040	0.040	0.999
0.042	0.042	0.999
0.044	0.044	0.999
0.046	0.046	0.999
0.048	0.048	0.999
0.050	0.050	0.999
0.052	0.052	0.999
0.054	0.054	0.999
0.056	0.056	0.998
0.058	0.058	0.998
0.060	0.060	0.998
0.062	0.062	0.998
0.064	0.064	0.998
0.066	0.066	0.998
0.068	0.068	0.998
0.070	0.070	0.998
0.072	0.072	0.997
0.074	0.074	0.997
0.076	0.076	0.997
0.078	0.078	0.997
0.080	0.080	0.997
0.082	0.082	0.997
0.084	0.084	0.996
0.086	0.086	0.996
0.088	0.088	0.996
0.090	0.090	0.996
0.092	0.092	0.996
0.094	0.094	0.996
0.096	0.096	0.995
0.098	0.098	0.995
0.100	0.100	0.995
0.102	0.102	0.995
0.104	0.104	0.995
0.106	0.106	0.994
0.108	0.108	0.994
0.110	0.110	0.994
0.112	0.112	0.994

0.114	0.114	0.994
0.116	0.116	0.993
0.118	0.118	0.993
0.120	0.120	0.993
0.122	0.122	0.993
0.124	0.124	0.992
0.126	0.126	0.992
0.128	0.128	0.992
0.130	0.130	0.992
0.132	0.132	0.991
0.134	0.134	0.991
0.136	0.136	0.991
0.138	0.138	0.990
0.140	0.140	0.990
0.142	0.142	0.990
0.144	0.144	0.990
0.146	0.145	0.989
0.148	0.147	0.989
0.150	0.149	0.989
0.152	0.151	0.988
0.154	0.153	0.988
0.156	0.155	0.988
0.158	0.157	0.988
0.160	0.159	0.987
0.162	0.161	0.987
0.164	0.163	0.987
0.166	0.165	0.986
0.168	0.167	0.986
0.170	0.169	0.986
0.172	0.171	0.985
0.174	0.173	0.985
0.176	0.175	0.985
0.178	0.177	0.984
0.180	0.179	0.984
0.182	0.181	0.983
0.184	0.183	0.983
0.186	0.185	0.983
0.188	0.187	0.982
0.190	0.189	0.982
0.192	0.191	0.982
0.194	0.193	0.981
0.196	0.195	0.981
0.198	0.197	0.980
0.200	0.199	0.980
0.202	0.201	0.980
0.204	0.203	0.979
0.206	0.205	0.979
0.208	0.207	0.978

0.210	0.208	0.978
0.212	0.210	0.978
0.214	0.212	0.977
0.216	0.214	0.977
0.218	0.216	0.976
0.220	0.218	0.976
0.222	0.220	0.975
0.224	0.222	0.975
0.226	0.224	0.975
0.228	0.226	0.974
0.230	0.228	0.974
0.232	0.230	0.973
0.234	0.232	0.973
0.236	0.234	0.972
0.238	0.236	0.972
0.240	0.238	0.971
0.242	0.240	0.971
0.244	0.242	0.970
0.246	0.244	0.970
0.248	0.245	0.969
0.250	0.247	0.969
0.252	0.249	0.968
0.254	0.251	0.968
0.256	0.253	0.967
0.258	0.255	0.967
0.260	0.257	0.966
0.262	0.259	0.966
0.264	0.261	0.965
0.266	0.263	0.965
0.268	0.265	0.964
0.270	0.267	0.964
0.272	0.269	0.963
0.274	0.271	0.963
0.276	0.273	0.962
0.278	0.274	0.962
0.280	0.276	0.961
0.282	0.278	0.961
0.284	0.280	0.960
0.286	0.282	0.959
0.288	0.284	0.959
0.290	0.286	0.958
0.292	0.288	0.958
0.294	0.290	0.957
0.296	0.292	0.957
0.298	0.294	0.956
0.300	0.296	0.955
0.302	0.297	0.955
0.304	0.299	0.954

0.306	0.301	0.954
0.308	0.303	0.953
0.310	0.305	0.952
0.312	0.307	0.952
0.314	0.309	0.951
0.316	0.311	0.950
0.318	0.313	0.950
0.320	0.315	0.949
0.322	0.316	0.949
0.324	0.318	0.948
0.326	0.320	0.947
0.328	0.322	0.947
0.330	0.324	0.946
0.332	0.326	0.945
0.334	0.328	0.945
0.336	0.330	0.944
0.338	0.332	0.943
0.340	0.333	0.943
0.342	0.335	0.942
0.344	0.337	0.941
0.346	0.339	0.941
0.348	0.341	0.940
0.350	0.343	0.939
0.352	0.345	0.939
0.354	0.347	0.938
0.356	0.349	0.937
0.358	0.350	0.937
0.360	0.352	0.936
0.362	0.354	0.935
0.364	0.356	0.934
0.366	0.358	0.934
0.368	0.360	0.933
0.370	0.362	0.932
0.372	0.363	0.932
0.374	0.365	0.931
0.376	0.367	0.930
0.378	0.369	0.929
0.380	0.371	0.929
0.382	0.373	0.928
0.384	0.375	0.927
0.386	0.376	0.926
0.388	0.378	0.926
0.390	0.380	0.925
0.392	0.382	0.924
0.394	0.384	0.923
0.396	0.386	0.923
0.398	0.388	0.922
0.400	0.389	0.921

0.402	0.391	0.920
0.404	0.393	0.919
0.406	0.395	0.919
0.408	0.397	0.918
0.410	0.399	0.917
0.412	0.400	0.916
0.414	0.402	0.916
0.416	0.404	0.915
0.418	0.406	0.914
0.420	0.408	0.913
0.422	0.410	0.912
0.424	0.411	0.911
0.426	0.413	0.911
0.428	0.415	0.910
0.430	0.417	0.909
0.432	0.419	0.908
0.434	0.421	0.907
0.436	0.422	0.906
0.438	0.424	0.906
0.440	0.426	0.905
0.442	0.428	0.904
0.444	0.430	0.903
0.446	0.431	0.902
0.448	0.433	0.901
0.450	0.435	0.900
0.452	0.437	0.900
0.454	0.439	0.899
0.456	0.440	0.898
0.458	0.442	0.897
0.460	0.444	0.896
0.462	0.446	0.895
0.464	0.448	0.894
0.466	0.449	0.893
0.468	0.451	0.892
0.470	0.453	0.892
0.472	0.455	0.891
0.474	0.456	0.890
0.476	0.458	0.889
0.478	0.460	0.888
0.480	0.462	0.887
0.482	0.464	0.886
0.484	0.465	0.885
0.486	0.467	0.884
0.488	0.469	0.883
0.490	0.471	0.882
0.492	0.472	0.881
0.494	0.474	0.880
0.496	0.476	0.879

0.498	0.478	0.879
0.500	0.479	0.878
0.502	0.481	0.877
0.504	0.483	0.876
0.506	0.485	0.875
0.508	0.486	0.874
0.510	0.488	0.873
0.512	0.490	0.872
0.514	0.492	0.871
0.516	0.493	0.870
0.518	0.495	0.869
0.520	0.497	0.868
0.522	0.499	0.867
0.524	0.500	0.866
0.526	0.502	0.865
0.528	0.504	0.864
0.530	0.506	0.863
0.532	0.507	0.862
0.534	0.509	0.861
0.536	0.511	0.860
0.538	0.512	0.859
0.540	0.514	0.858
0.542	0.516	0.857
0.544	0.518	0.856
0.546	0.519	0.855
0.548	0.521	0.854
0.550	0.523	0.853
0.552	0.524	0.851
0.554	0.526	0.850
0.556	0.528	0.849
0.558	0.529	0.848
0.560	0.531	0.847
0.562	0.533	0.846
0.564	0.535	0.845
0.566	0.536	0.844
0.568	0.538	0.843
0.570	0.540	0.842
0.572	0.541	0.841
0.574	0.543	0.840
0.576	0.545	0.839
0.578	0.546	0.838
0.580	0.548	0.836
0.582	0.550	0.835
0.584	0.551	0.834
0.586	0.553	0.833
0.588	0.555	0.832
0.590	0.556	0.831
0.592	0.558	0.830

0.594	0.560	0.829
0.596	0.561	0.828
0.598	0.563	0.826
0.600	0.565	0.825
0.602	0.566	0.824
0.604	0.568	0.823
0.606	0.570	0.822
0.608	0.571	0.821
0.610	0.573	0.820
0.612	0.575	0.819
0.614	0.576	0.817
0.616	0.578	0.816
0.618	0.579	0.815
0.620	0.581	0.814
0.622	0.583	0.813
0.624	0.584	0.812
0.626	0.586	0.810
0.628	0.588	0.809
0.630	0.589	0.808
0.632	0.591	0.807
0.634	0.592	0.806
0.636	0.594	0.804
0.638	0.596	0.803
0.640	0.597	0.802
0.642	0.599	0.801
0.644	0.600	0.800
0.646	0.602	0.798
0.648	0.604	0.797
0.650	0.605	0.796
0.652	0.607	0.795
0.654	0.608	0.794
0.656	0.610	0.792
0.658	0.612	0.791
0.660	0.613	0.790
0.662	0.615	0.789
0.664	0.616	0.788
0.666	0.618	0.786
0.668	0.619	0.785
0.670	0.621	0.784
0.672	0.623	0.783
0.674	0.624	0.781
0.676	0.626	0.780
0.678	0.627	0.779
0.680	0.629	0.778
0.682	0.630	0.776
0.684	0.632	0.775
0.686	0.633	0.774
0.688	0.635	0.773

0.690	0.637	0.771
0.692	0.638	0.770
0.694	0.640	0.769
0.696	0.641	0.767
0.698	0.643	0.766
0.700	0.644	0.765
0.702	0.646	0.764
0.704	0.647	0.762
0.706	0.649	0.761
0.708	0.650	0.760
0.710	0.652	0.758
0.712	0.653	0.757
0.714	0.655	0.756
0.716	0.656	0.754
0.718	0.658	0.753
0.720	0.659	0.752
0.722	0.661	0.750
0.724	0.662	0.749
0.726	0.664	0.748
0.728	0.665	0.747
0.730	0.667	0.745
0.732	0.668	0.744
0.734	0.670	0.743
0.736	0.671	0.741
0.738	0.673	0.740
0.740	0.674	0.738
0.742	0.676	0.737
0.744	0.677	0.736
0.746	0.679	0.734
0.748	0.680	0.733
0.750	0.682	0.732
0.752	0.683	0.730
0.754	0.685	0.729
0.756	0.686	0.728
0.758	0.687	0.726
0.760	0.689	0.725
0.762	0.690	0.723
0.764	0.692	0.722
0.766	0.693	0.721
0.768	0.695	0.719
0.770	0.696	0.718
0.772	0.698	0.717
0.774	0.699	0.715
0.776	0.700	0.714
0.778	0.702	0.712
0.780	0.703	0.711
0.782	0.705	0.710
0.784	0.706	0.708

0.786	0.708	0.707
0.788	0.709	0.705
0.790	0.710	0.704
0.792	0.712	0.702
0.794	0.713	0.701
0.796	0.715	0.700
0.798	0.716	0.698
0.800	0.717	0.697
0.802	0.719	0.695
0.804	0.720	0.694
0.806	0.722	0.692
0.808	0.723	0.691
0.810	0.724	0.689
0.812	0.726	0.688
0.814	0.727	0.687
0.816	0.728	0.685
0.818	0.730	0.684
0.820	0.731	0.682
0.822	0.733	0.681
0.824	0.734	0.679
0.826	0.735	0.678
0.828	0.737	0.676
0.830	0.738	0.675
0.832	0.739	0.673
0.834	0.741	0.672
0.836	0.742	0.670
0.838	0.743	0.669
0.840	0.745	0.667
0.842	0.746	0.666
0.844	0.747	0.664
0.846	0.749	0.663
0.848	0.750	0.661
0.850	0.751	0.660
0.852	0.753	0.658
0.854	0.754	0.657
0.856	0.755	0.655
0.858	0.757	0.654
0.860	0.758	0.652
0.862	0.759	0.651
0.864	0.760	0.649
0.866	0.762	0.648
0.868	0.763	0.646
0.870	0.764	0.645
0.872	0.766	0.643
0.874	0.767	0.642
0.876	0.768	0.640
0.878	0.769	0.639
0.880	0.771	0.637

0.882	0.772	0.636
0.884	0.773	0.634
0.886	0.775	0.633
0.888	0.776	0.631
0.890	0.777	0.629
0.892	0.778	0.628
0.894	0.780	0.626
0.896	0.781	0.625
0.898	0.782	0.623
0.900	0.783	0.622
0.902	0.785	0.620
0.904	0.786	0.618
0.906	0.787	0.617
0.908	0.788	0.615
0.910	0.790	0.614
0.912	0.791	0.612
0.914	0.792	0.611
0.916	0.793	0.609
0.918	0.794	0.607
0.920	0.796	0.606
0.922	0.797	0.604
0.924	0.798	0.603
0.926	0.799	0.601
0.928	0.800	0.599
0.930	0.802	0.598
0.932	0.803	0.596
0.934	0.804	0.595
0.936	0.805	0.593
0.938	0.806	0.591
0.940	0.808	0.590
0.942	0.809	0.588
0.944	0.810	0.587
0.946	0.811	0.585
0.948	0.812	0.583
0.950	0.813	0.582
0.952	0.815	0.580
0.954	0.816	0.578
0.956	0.817	0.577
0.958	0.818	0.575
0.960	0.819	0.574
0.962	0.820	0.572
0.964	0.821	0.570
0.966	0.823	0.569
0.968	0.824	0.567
0.970	0.825	0.565
0.972	0.826	0.564
0.974	0.827	0.562
0.976	0.828	0.560

0.978	0.829	0.559
0.980	0.830	0.557
0.982	0.832	0.555
0.984	0.833	0.554
0.986	0.834	0.552
0.988	0.835	0.550
0.990	0.836	0.549
0.992	0.837	0.547
0.994	0.838	0.545
0.996	0.839	0.544
0.998	0.840	0.542
1.000	0.841	0.540
1.002	0.843	0.539
1.004	0.844	0.537
1.006	0.845	0.535
1.008	0.846	0.534
1.010	0.847	0.532
1.012	0.848	0.530
1.014	0.849	0.528
1.016	0.850	0.527
1.018	0.851	0.525
1.020	0.852	0.523
1.022	0.853	0.522
1.024	0.854	0.520
1.026	0.855	0.518
1.028	0.856	0.517
1.030	0.857	0.515
1.032	0.858	0.513
1.034	0.859	0.511
1.036	0.860	0.510
1.038	0.861	0.508
1.040	0.862	0.506
1.042	0.863	0.504
1.044	0.864	0.503
1.046	0.865	0.501
1.048	0.866	0.499
1.050	0.867	0.498
1.052	0.868	0.496
1.054	0.869	0.494
1.056	0.870	0.492
1.058	0.871	0.491
1.060	0.872	0.489
1.062	0.873	0.487
1.064	0.874	0.485
1.066	0.875	0.484
1.068	0.876	0.482
1.070	0.877	0.480
1.072	0.878	0.478

1.074	0.879	0.477
1.076	0.880	0.475
1.078	0.881	0.473
1.080	0.882	0.471
1.082	0.883	0.470
1.084	0.884	0.468
1.086	0.885	0.466
1.088	0.886	0.464
1.090	0.887	0.462
1.092	0.888	0.461
1.094	0.888	0.459
1.096	0.889	0.457
1.098	0.890	0.455
1.100	0.891	0.454
1.102	0.892	0.452
1.104	0.893	0.450
1.106	0.894	0.448
1.108	0.895	0.446
1.110	0.896	0.445
1.112	0.897	0.443
1.114	0.897	0.441
1.116	0.898	0.439
1.118	0.899	0.437
1.120	0.900	0.436
1.122	0.901	0.434
1.124	0.902	0.432
1.126	0.903	0.430
1.128	0.904	0.428
1.130	0.904	0.427
1.132	0.905	0.425
1.134	0.906	0.423
1.136	0.907	0.421
1.138	0.908	0.419
1.140	0.909	0.418
1.142	0.909	0.416
1.144	0.910	0.414
1.146	0.911	0.412
1.148	0.912	0.410
1.150	0.913	0.408
1.152	0.914	0.407
1.154	0.914	0.405
1.156	0.915	0.403
1.158	0.916	0.401
1.160	0.917	0.399
1.162	0.918	0.398
1.164	0.918	0.396
1.166	0.919	0.394
1.168	0.920	0.392

1.170	0.921	0.390
1.172	0.922	0.388
1.174	0.922	0.386
1.176	0.923	0.385
1.178	0.924	0.383
1.180	0.925	0.381
1.182	0.925	0.379
1.184	0.926	0.377
1.186	0.927	0.375
1.188	0.928	0.374
1.190	0.928	0.372
1.192	0.929	0.370
1.194	0.930	0.368
1.196	0.931	0.366
1.198	0.931	0.364
1.200	0.932	0.362
1.202	0.933	0.360
1.204	0.933	0.359
1.206	0.934	0.357
1.208	0.935	0.355
1.210	0.936	0.353
1.212	0.936	0.351
1.214	0.937	0.349
1.216	0.938	0.347
1.218	0.938	0.346
1.220	0.939	0.344
1.222	0.940	0.342
1.224	0.940	0.340
1.226	0.941	0.338
1.228	0.942	0.336
1.230	0.942	0.334
1.232	0.943	0.332
1.234	0.944	0.330
1.236	0.944	0.329
1.238	0.945	0.327
1.240	0.946	0.325
1.242	0.946	0.323
1.244	0.947	0.321
1.246	0.948	0.319
1.248	0.948	0.317
1.250	0.949	0.315
1.252	0.950	0.313
1.254	0.950	0.312
1.256	0.951	0.310
1.258	0.951	0.308
1.260	0.952	0.306
1.262	0.953	0.304
1.264	0.953	0.302

1.266	0.954	0.300
1.268	0.955	0.298
1.270	0.955	0.296
1.272	0.956	0.294
1.274	0.956	0.292
1.276	0.957	0.291
1.278	0.957	0.289
1.280	0.958	0.287
1.282	0.959	0.285
1.284	0.959	0.283
1.286	0.960	0.281
1.288	0.960	0.279
1.290	0.961	0.277
1.292	0.961	0.275
1.294	0.962	0.273
1.296	0.962	0.271
1.298	0.963	0.269
1.300	0.964	0.267
1.302	0.964	0.266
1.304	0.965	0.264
1.306	0.965	0.262
1.308	0.966	0.260
1.310	0.966	0.258
1.312	0.967	0.256
1.314	0.967	0.254
1.316	0.968	0.252
1.318	0.968	0.250
1.320	0.969	0.248
1.322	0.969	0.246
1.324	0.970	0.244
1.326	0.970	0.242
1.328	0.971	0.240
1.330	0.971	0.238
1.332	0.972	0.237
1.334	0.972	0.235
1.336	0.973	0.233
1.338	0.973	0.231
1.340	0.973	0.229
1.342	0.974	0.227
1.344	0.974	0.225
1.346	0.975	0.223
1.348	0.975	0.221
1.350	0.976	0.219
1.352	0.976	0.217
1.354	0.977	0.215
1.356	0.977	0.213
1.358	0.977	0.211
1.360	0.978	0.209

1.362	0.978	0.207
1.364	0.979	0.205
1.366	0.979	0.203
1.368	0.980	0.201
1.370	0.980	0.199
1.372	0.980	0.197
1.374	0.981	0.196
1.376	0.981	0.194
1.378	0.981	0.192
1.380	0.982	0.190
1.382	0.982	0.188
1.384	0.983	0.186
1.386	0.983	0.184
1.388	0.983	0.182
1.390	0.984	0.180
1.392	0.984	0.178
1.394	0.984	0.176
1.396	0.985	0.174
1.398	0.985	0.172
1.400	0.985	0.170
1.402	0.986	0.168
1.404	0.986	0.166
1.406	0.986	0.164
1.408	0.987	0.162
1.410	0.987	0.160
1.412	0.987	0.158
1.414	0.988	0.156
1.416	0.988	0.154
1.418	0.988	0.152
1.420	0.989	0.150
1.422	0.989	0.148
1.424	0.989	0.146
1.426	0.990	0.144
1.428	0.990	0.142
1.430	0.990	0.140
1.432	0.990	0.138
1.434	0.991	0.136
1.436	0.991	0.134
1.438	0.991	0.132
1.440	0.991	0.130
1.442	0.992	0.128
1.444	0.992	0.126
1.446	0.992	0.124
1.448	0.992	0.122
1.450	0.993	0.121
1.452	0.993	0.119
1.454	0.993	0.117
1.456	0.993	0.115

1.458	0.994	0.113
1.460	0.994	0.111
1.462	0.994	0.109
1.464	0.994	0.107
1.466	0.995	0.105
1.468	0.995	0.103
1.470	0.995	0.101
1.472	0.995	0.099
1.474	0.995	0.097
1.476	0.996	0.095
1.478	0.996	0.093
1.480	0.996	0.091
1.482	0.996	0.089
1.484	0.996	0.087
1.486	0.996	0.085
1.488	0.997	0.083
1.490	0.997	0.081
1.492	0.997	0.079
1.494	0.997	0.077
1.496	0.997	0.075
1.498	0.997	0.073
1.500	0.997	0.071
1.502	0.998	0.069
1.504	0.998	0.067
1.506	0.998	0.065
1.508	0.998	0.063
1.510	0.998	0.061
1.512	0.998	0.059
1.514	0.998	0.057
1.516	0.998	0.055
1.518	0.999	0.053
1.520	0.999	0.051
1.522	0.999	0.049
1.524	0.999	0.047
1.526	0.999	0.045
1.528	0.999	0.043
1.530	0.999	0.041
1.532	0.999	0.039
1.534	0.999	0.037
1.536	0.999	0.035
1.538	0.999	0.033
1.540	1.000	0.031
1.542	1.000	0.029
1.544	1.000	0.027
1.546	1.000	0.025
1.548	1.000	0.023
1.550	1.000	0.021
1.552	1.000	0.019

1.554	1.000	0.017
1.556	1.000	0.015
1.558	1.000	0.013
1.560	1.000	0.011
1.562	1.000	0.009
1.564	1.000	0.007
1.566	1.000	0.005
1.568	1.000	0.003
1.570	1.000	0.001
1.572	1.000	-0.001
1.574	1.000	-0.003
1.576	1.000	-0.005
1.578	1.000	-0.007
1.580	1.000	-0.009
1.582	1.000	-0.011
1.584	1.000	-0.013
1.586	1.000	-0.015
1.588	1.000	-0.017
1.590	1.000	-0.019
1.592	1.000	-0.021
1.594	1.000	-0.023
1.596	1.000	-0.025
1.598	1.000	-0.027
1.600	1.000	-0.029
1.602	1.000	-0.031
1.604	0.999	-0.033
1.606	0.999	-0.035
1.608	0.999	-0.037
1.610	0.999	-0.039
1.612	0.999	-0.041
1.614	0.999	-0.043
1.616	0.999	-0.045
1.618	0.999	-0.047
1.620	0.999	-0.049
1.622	0.999	-0.051
1.624	0.999	-0.053
1.626	0.998	-0.055
1.628	0.998	-0.057
1.630	0.998	-0.059
1.632	0.998	-0.061
1.634	0.998	-0.063
1.636	0.998	-0.065
1.638	0.998	-0.067
1.640	0.998	-0.069
1.642	0.997	-0.071
1.644	0.997	-0.073
1.646	0.997	-0.075
1.648	0.997	-0.077

1.650	0.997	-0.079
1.652	0.997	-0.081
1.654	0.997	-0.083
1.656	0.996	-0.085
1.658	0.996	-0.087
1.660	0.996	-0.089
1.662	0.996	-0.091
1.664	0.996	-0.093
1.666	0.995	-0.095
1.668	0.995	-0.097
1.670	0.995	-0.099
1.672	0.995	-0.101
1.674	0.995	-0.103
1.676	0.994	-0.105
1.678	0.994	-0.107
1.680	0.994	-0.109
1.682	0.994	-0.111
1.684	0.994	-0.113
1.686	0.993	-0.115
1.688	0.993	-0.117
1.690	0.993	-0.119
1.692	0.993	-0.121
1.694	0.992	-0.123
1.696	0.992	-0.125
1.698	0.992	-0.127
1.700	0.992	-0.129
1.702	0.991	-0.131
1.704	0.991	-0.133
1.706	0.991	-0.135
1.708	0.991	-0.137
1.710	0.990	-0.139
1.712	0.990	-0.141
1.714	0.990	-0.143
1.716	0.989	-0.145
1.718	0.989	-0.147
1.720	0.989	-0.149
1.722	0.989	-0.151
1.724	0.988	-0.153
1.726	0.988	-0.155
1.728	0.988	-0.157
1.730	0.987	-0.159
1.732	0.987	-0.161
1.734	0.987	-0.162
1.736	0.986	-0.164
1.738	0.986	-0.166
1.740	0.986	-0.168
1.742	0.985	-0.170
1.744	0.985	-0.172

1.746	0.985	-0.174
1.748	0.984	-0.176
1.750	0.984	-0.178
1.752	0.984	-0.180
1.754	0.983	-0.182
1.756	0.983	-0.184
1.758	0.983	-0.186
1.760	0.982	-0.188
1.762	0.982	-0.190
1.764	0.981	-0.192
1.766	0.981	-0.194
1.768	0.981	-0.196
1.770	0.980	-0.198
1.772	0.980	-0.200
1.774	0.979	-0.202
1.776	0.979	-0.204
1.778	0.979	-0.206
1.780	0.978	-0.208
1.782	0.978	-0.210
1.784	0.977	-0.212
1.786	0.977	-0.214
1.788	0.977	-0.215
1.790	0.976	-0.217
1.792	0.976	-0.219
1.794	0.975	-0.221
1.796	0.975	-0.223
1.798	0.974	-0.225
1.800	0.974	-0.227
1.802	0.973	-0.229
1.804	0.973	-0.231
1.806	0.972	-0.233
1.808	0.972	-0.235
1.810	0.972	-0.237
1.812	0.971	-0.239
1.814	0.971	-0.241
1.816	0.970	-0.243
1.818	0.970	-0.245
1.820	0.969	-0.247
1.822	0.969	-0.249
1.824	0.968	-0.251
1.826	0.968	-0.252
1.828	0.967	-0.254
1.830	0.967	-0.256
1.832	0.966	-0.258
1.834	0.966	-0.260
1.836	0.965	-0.262
1.838	0.965	-0.264
1.840	0.964	-0.266

1.842	0.963	-0.268
1.844	0.963	-0.270
1.846	0.962	-0.272
1.848	0.962	-0.274
1.850	0.961	-0.276
1.852	0.961	-0.278
1.854	0.960	-0.279
1.856	0.960	-0.281
1.858	0.959	-0.283
1.860	0.958	-0.285
1.862	0.958	-0.287
1.864	0.957	-0.289
1.866	0.957	-0.291
1.868	0.956	-0.293
1.870	0.956	-0.295
1.872	0.955	-0.297
1.874	0.954	-0.299
1.876	0.954	-0.300
1.878	0.953	-0.302
1.880	0.953	-0.304
1.882	0.952	-0.306
1.884	0.951	-0.308
1.886	0.951	-0.310
1.888	0.950	-0.312
1.890	0.949	-0.314
1.892	0.949	-0.316
1.894	0.948	-0.318
1.896	0.948	-0.320
1.898	0.947	-0.321
1.900	0.946	-0.323
1.902	0.946	-0.325
1.904	0.945	-0.327
1.906	0.944	-0.329
1.908	0.944	-0.331
1.910	0.943	-0.333
1.912	0.942	-0.335
1.914	0.942	-0.337
1.916	0.941	-0.338
1.918	0.940	-0.340
1.920	0.940	-0.342
1.922	0.939	-0.344
1.924	0.938	-0.346
1.926	0.938	-0.348
1.928	0.937	-0.350
1.930	0.936	-0.352
1.932	0.935	-0.353
1.934	0.935	-0.355
1.936	0.934	-0.357

```
1.938     0.933    -0.359
1.940     0.933    -0.361
1.942     0.932    -0.363
1.944     0.931    -0.365
1.946     0.930    -0.366
1.948     0.930    -0.368
1.950     0.929    -0.370
1.952     0.928    -0.372
1.954     0.927    -0.374
1.956     0.927    -0.376
1.958     0.926    -0.378
1.960     0.925    -0.379
1.962     0.924    -0.381
1.964     0.924    -0.383
1.966     0.923    -0.385
1.968     0.922    -0.387
1.970     0.921    -0.389
1.972     0.921    -0.391
1.974     0.920    -0.392
1.976     0.919    -0.394
1.978     0.918    -0.396
1.980     0.917    -0.398
1.982     0.917    -0.400
1.984     0.916    -0.402
1.986     0.915    -0.403
1.988     0.914    -0.405
1.990     0.913    -0.407
1.992     0.913    -0.409
1.994     0.912    -0.411
1.996     0.911    -0.413
1.998     0.910    -0.414
2.000     0.909    -0.416
```

Table the first 10 values of the functions.

[36]:
```
print("    x        sin(x)     cos(x)")
for i in range(10):
    print(f"{Tuple_list[i][0]:03f} | {Tuple_list[i][1]:03f} | {Tuple_list[i][2]:
 ↪03f} |")
```

```
    x        sin(x)     cos(x)
0.000000 | 0.000000 | 1.000000 |
0.002000 | 0.002000 | 0.999998 |
0.004000 | 0.004000 | 0.999992 |
0.006000 | 0.006000 | 0.999982 |
0.008000 | 0.008000 | 0.999968 |
0.010000 | 0.010000 | 0.999950 |
0.012000 | 0.012000 | 0.999928 |
0.014000 | 0.014000 | 0.999902 |
```

```
0.016000 | 0.015999 | 0.999872 |
0.018000 | 0.017999 | 0.999838 |
```