

**Problem 1. Annuity Immediate**

Please code up annuity.py in base python only, without using packages (such as numpy) that are not included in the python.org release.

[1] When your script is run on the command line with arguments term and interest:

```
python annuity.py 2 0.01
```

it should output the present value and the future value of the desired annuity immediate, similar to the following:

Annuity Immediate			
term	interest	PV	FV
2	0.01	1.9704	2.0100

[2] When your script is run on the command line with invalid term and/or interest, it should output an error message and smoothly terminate.

[3] When your script is run on the command line without arguments, it should output the following present value table and future value table, with values aligned, and shown to 4 decimal places.

Present Value of Annuity Immediate									
	1%	2%	3%	4%	5%	6%	7%	8%	9%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6726	2.6234	2.5751	2.5273
4	3.9020	3.8077	3.7171	3.6290	3.5430	3.4591	3.3772	3.2971	3.2187
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285
21	18.8570	17.0112	15.4150	14.0292	12.8212	11.7641	10.8355	10.0168	9.2922
22	19.6604	17.6580	15.9369	14.4511	13.1630	12.0416	11.0612	10.2007	9.4424
23	20.4558	18.2922	16.4436	14.8568	13.4886	12.3034	11.2722	10.3711	9.5862
24	21.2434	18.9139	16.9355	15.2470	13.7986	12.5504	11.4693	10.5288	9.7066
25	22.0237	19.5236	17.4120	15.6225	14.0937	12.7848	11.6469	10.6737	9.8147
26	22.7969	20.1216	17.8743	15.9843	14.3757	13.0086	11.8052	10.8081	9.9107
27	23.5631	20.7081	18.3230	16.3325	14.6443	13.2177	11.9483	10.9329	10.0057
28	24.3223	21.2833	18.7584	16.6673	14.8994	13.4143	12.0783	11.0493	10.0997
29	25.0746	21.8475	19.1817	16.9890	15.1411	13.5986	12.1963	11.1575	10.1927
30	25.8191	22.4009	19.5931	17.2986	15.3700	13.7708	12.3034	11.2588	10.2847
31	26.5559	22.9437	19.9936	17.5963	15.5863	13.9321	12.3997	11.3533	10.3757
32	27.2841	23.4761	20.3833	17.8823	15.7906	14.0826	12.4855	11.4413	10.4657
33	28.0037	24.0000	20.7623	18.1568	15.9831	14.2224	12.5613	11.5229	10.5547
34	28.7149	24.5164	21.1307	18.4199	16.1638	14.3517	12.6281	11.5983	10.6427
35	29.4177	25.0264	21.4887	18.6718	16.3329	14.4706	12.6860	11.6677	10.7297
36	30.1121	25.5299	21.8367	18.9127	16.4906	14.5792	12.7360	11.7307	10.8157
37	30.7981	26.0270	22.1749	19.1427	16.6377	14.6777	12.7781	11.7873	10.8997
38	31.4757	26.5187	22.5034	19.3619	16.7741	14.7662	12.8124	11.8377	10.9827
39	32.1449	27.0051	22.8223	19.5704	16.8999	14.8448	12.8391	11.8819	11.0647
40	32.8057	27.4863	23.1317	19.7684	17.0153	14.9136	12.8583	11.9199	11.1457
41	33.4581	27.9623	23.4325	19.9559	17.1204	14.9727	12.8700	11.9519	11.2257
42	34.1021	28.4341	23.7247	20.1330	17.2154	15.0222	12.8753	11.9779	11.3047
43	34.7377	28.8917	24.0083	20.3006	17.3004	15.0622	12.8743	11.9979	11.3827
44	35.3649	29.3351	24.2744	20.4583	17.3754	15.0927	12.8671	12.0119	11.4597
45	35.9837	29.7643	24.5321	20.6061	17.4404	15.1137	12.8549	12.0199	11.5357
46	36.5941	30.1793	24.7813	20.7449	17.4954	15.1252	12.8367	12.0219	11.6107
47	37.1961	30.5801	25.0229	20.8747	17.5404	15.1272	12.8127	12.0179	11.6847
48	37.7897	30.9667	25.2569	20.9955	17.5754	15.1197	12.7831	12.0079	11.7577
49	38.3749	31.3391	25.4833	21.1073	17.6004	15.1027	12.7481	11.9919	11.8297
50	38.9517	31.6973	25.7021	21.2101	17.6154	15.0762	12.7081	11.9699	11.9007

Future Value of Annuity Immediate									
	1%	2%	3%	4%	5%	6%	7%	8%	9%
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	2.0100	2.0200	2.0300	2.0400	2.0500	2.0600	2.0700	2.0800	2.0900
3	3.0301	3.0604	3.0909	3.1216	3.1525	3.1836	3.2149	3.2464	3.2781
4	4.0604	4.1216	4.1836	4.2465	4.3101	4.3746	4.4399	4.5061	4.5731
5	5.1010	5.2040	5.3091	5.4163	5.5256	5.6371	5.7507	5.8666	5.9847
6	6.1520	6.3081	6.4684	6.6330	6.8019	6.9753	7.1533	7.3359	7.5233
7	7.2135	7.4343	7.6625	7.8983	8.1420	8.3938	8.6540	8.9228	9.2004
8	8.2857	8.5830	8.8923	9.2142	9.5491	9.8975	10.2598	10.6366	11.0285
9	9.3685	9.7546	10.1591	10.5828	11.0266	11.4913	11.9780	12.4876	13.0210
10	10.4622	10.9497	11.4639	12.0061	12.5779	13.1808	13.8164	14.4866	15.1929
11	11.5668	12.1687	12.8078	13.4864	14.2068	14.9716	15.7836	16.6455	17.5603
12	12.6825	13.4121	14.1920	15.0258	15.9171	16.8699	17.8885	18.9771	20.1407
13	13.8093	14.6803	15.6178	16.6268	17.7130	18.8821	20.1406	21.4953	22.9534
14	14.9474	15.9739	17.0863	18.2919	19.5986	21.0151	22.5505	24.2149	26.0192
15	16.0969	17.2934	18.5989	20.0236	21.5786	23.2760	25.1290	27.1521	29.3609
16	17.2579	18.6393	20.1569	21.8245	23.6575	25.6725	27.8881	30.3243	33.0034
17	18.4304	20.0121	21.7616	23.6975	25.8404	28.2129	30.8402	33.7502	36.9737
18	19.6147	21.4123	23.4144	25.6454	28.1324	30.9057	33.9990	37.4502	41.3013
19	20.8109	22.8406	25.1169	27.6712	30.5390	33.7600	37.3790	41.4463	46.0185
20	22.0190	24.2974	26.8704	29.7781	33.0660	36.7856	40.9955	45.7620	51.1601
21	23.2392	25.7833	28.6765	31.9692	35.7193	39.9927	44.8652	50.4229	56.7645
22	24.4716	27.2990	30.5368	34.2480	38.5052	43.3923	49.0057	55.4568	62.8733
23	25.7163	28.8450	32.4529	36.6179	41.4305	46.9958	53.4361	60.8933	69.5319
24	26.9735	30.4219	34.4265	39.0826	44.5020	50.8156	58.1767	66.7648	76.7898
25	28.2431	32.0304	36.4465	41.8409	47.5104	54.4688	62.8100	73.0000	84.6881
26	29.5251	33.6714	38.5189	44.7924	50.4604	58.4688	68.7648	80.6000	93.2800
27	30.8195	35.3459	40.6407	47.9339	53.4504	62.8100	74.6000	88.8000	102.6000
28	32.1263	37.0549	42.8109	51.1714	56.4831	67.0000	80.8000	97.6000	112.8000
29	33.4455	38.7994	45.0265	54.5119	59.5631	71.4000	87.6000	107.2000	123.8000
30	34.7871	40.5804	47.2855	57.8524	62.6954	75.9000	94.4000	117.6000	135.2000
31	36.1511	42.3979	49.5859	61.2999	65.9854	80.4000	102.4000	128.8000	147.6000
32	37.5375	44.2529	51.9309	64.8604	69.5299	85.9000	110.8000	140.8000	161.0000
33	38.9463	46.1464	54.3144	68.4609	73.6354	91.4000	120.0000	153.6000	175.6000
34	40.3775	48.0794	56.7654	72.0939	77.8099	97.0000	129.6000	167.2000	191.0000
35	41.8311	50.0529	59.3209	75.7664	82.0499	102.7000	139.6000	181.6000	207.2000
36	43.3071	52.0669	61.9799	79.4754	86.3614	108.5000	150.0000	196.8000	224.4000
37	44.8055	54.1214	64.7404	83.2269	90.7404	114.4000	160.8000	212.8000	242.8000
38	46.3263	56.2164	67.5924	87.0179	95.0954	120.4000	172.0000	229.6000	262.4000
39	47.8695	58.3519	70.5349	90.8554	99.5239	126.5000	183.6000	247.2000	283.6000
40	49.4351	60.5269	73.5669	94.7369	104.0324	132.7000	195.6000	265.6000	306.4000
41	51.0231	62.7414	76.6884	98.6689	108.6204	138.9000	208.0000	285.2000	330.8000
42	52.6335	65.0054	79.9004	102.6504	113.2854	145.2000	220.8000	306.0000	356.8000
43	54.2663	67.3189	83.2019	106.7809	118.0254	151.6000	234.0000	328.0000	384.0000
44	55.9215	69.6819	86.5924	110.9684	122.8374	158.0000	247.6000	351.2000	412.4000
45	57.5991	72.0954	90.0729	115.3209	127.7194	164.5000	261.6000	376.0000	442.0000