

Present and Future Values

Sum of an Annuity of \$1 Per Period for n Periods

Period	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2	2.040	2.050	2.060	2.070	2.080	2.090	2.100	2.120	2.140	2.150
3	3.122	3.153	3.184	3.215	3.246	3.278	3.310	3.374	3.440	3.473
4	4.246	4.310	4.375	4.440	4.506	4.573	4.641	4.779	4.921	4.993
5	5.416	5.526	5.637	5.751	5.867	5.985	6.105	6.353	6.610	6.742
6	6.633	6.802	6.975	7.153	7.336	7.523	7.716	8.115	8.536	8.754
7	7.898	8.142	8.394	8.654	8.923	9.200	9.487	10.089	10.730	11.067
8	9.214	9.549	9.897	10.260	10.637	11.028	11.436	12.300	13.233	13.727
9	10.583	11.027	11.491	11.978	12.488	13.021	13.579	14.776	16.085	16.786
10	12.006	12.578	13.181	13.816	14.487	15.193	15.937	17.549	19.337	20.304
11	13.486	14.207	14.972	15.784	16.645	17.560	18.531	20.655	23.045	24.349
12	15.026	15.917	16.870	17.888	18.977	20.141	21.384	24.133	27.271	29.002
13	16.627	17.713	18.882	20.141	21.495	22.953	24.523	28.029	32.089	34.352
14	18.292	19.599	21.015	22.550	24.215	26.019	27.975	32.393	37.581	40.505
15	20.024	21.579	23.276	25.129	27.152	29.361	31.772	37.280	43.842	47.580
16	21.825	23.657	25.673	27.888	30.324	33.003	35.950	42.753	50.980	55.717
17	23.698	25.840	28.213	30.840	33.750	36.974	40.545	48.884	59.118	65.075
18	25.645	28.132	30.906	33.999	37.450	41.301	45.599	55.750	68.394	75.836
19	27.671	30.539	33.760	37.379	41.446	46.018	51.159	63.440	78.969	88.212
20	29.778	33.066	36.786	40.995	45.762	51.160	57.275	72.052	91.025	102.444
21	31.969	35.719	39.993	44.865	50.423	56.765	64.002	81.699	104.768	118.810
22	34.248	38.505	43.392	49.006	55.457	62.873	71.403	92.503	120.436	137.632
23	36.618	41.430	46.996	53.436	60.893	69.532	79.543	104.603	138.297	159.276
24	39.083	44.502	50.816	58.177	66.765	76.790	88.497	118.155	158.659	184.168
25	41.646	47.727	54.865	63.249	73.106	84.701	98.347	133.334	181.871	212.793
26	44.312	51.113	59.156	68.676	79.954	93.324	109.182	150.334	208.333	245.712
27	47.084	54.669	63.706	74.484	87.351	102.723	121.100	169.374	238.499	283.569
28	49.968	58.403	68.528	80.698	95.339	112.968	134.210	190.699	272.889	327.104
29	52.966	62.323	73.640	87.347	103.966	124.135	148.631	214.583	312.094	377.170
30	56.085	66.439	79.058	94.461	113.283	136.308	164.494	241.333	356.787	434.745
40	95.026	120.800	154.762	199.635	259.057	337.882	442.593	767.091	1342.025	1779.090
50	152.667	209.348	290.336	406.529	573.770	815.084	1163.909	2400.018	4994.521	7217.716
60	237.991	353.584	533.128	813.520	1253.213	1944.792	3034.816	7471.641	18535.130	29219.990

Present Value of an Annuity of \$1 Per Period for n Periods

Number of Payments	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%
1	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696
2	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257
3	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832
4	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550
5	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522
6	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845
7	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604
8	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873
9	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716
10	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188
11	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337
12	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206
13	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831
14	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245
15	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474
16	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542
17	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472
18	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280
19	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982
20	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593
25	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641
30	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660
40	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418
50	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605
60	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651

Future Value of \$1 at the End of n Periods

Period	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%
1	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900	1.1000	1.1200	1.1400	1.1500
2	1.0816	1.1025	1.1236	1.1449	1.1664	1.1881	1.2100	1.2544	1.2996	1.3225
3	1.1249	1.1576	1.1910	1.2250	1.2597	1.2950	1.3310	1.4049	1.4815	1.5209
4	1.1699	1.2155	1.2625	1.3108	1.3605	1.4116	1.4641	1.5735	1.6890	1.7490
5	1.2167	1.2763	1.3382	1.4026	1.4693	1.5386	1.6105	1.7623	1.9254	2.0114
6	1.2653	1.3401	1.4185	1.5007	1.5869	1.6771	1.7716	1.9738	2.1950	2.3131
7	1.3159	1.4071	1.5036	1.6058	1.7138	1.8280	1.9487	2.2107	2.5023	2.6600
8	1.3686	1.4775	1.5938	1.7182	1.8509	1.9926	2.1436	2.4760	2.8526	3.0590
9	1.4233	1.5513	1.6895	1.8385	1.9990	2.1719	2.3579	2.7731	3.2519	3.5179
10	1.4802	1.6289	1.7908	1.9672	2.1589	2.3674	2.5937	3.1058	3.7072	4.0456
11	1.5395	1.7103	1.8983	2.1049	2.3316	2.5804	2.8531	3.4785	4.2262	4.6524
12	1.6010	1.7959	2.0122	2.2522	2.5182	2.8127	3.1384	3.8960	4.8179	5.3503
13	1.6651	1.8856	2.1329	2.4098	2.7196	3.0658	3.4523	4.3635	5.4924	6.1528
14	1.7317	1.9799	2.2609	2.5785	2.9372	3.3417	3.7975	4.8871	6.2613	7.0757
15	1.8009	2.0789	2.3966	2.7590	3.1722	3.6425	4.1772	5.4736	7.1379	8.1371
16	1.8730	2.1829	2.5404	2.9522	3.4259	3.9703	4.5950	6.1304	8.1372	9.3576
17	1.9479	2.2920	2.6928	3.1588	3.7000	4.3276	5.0545	6.8660	9.2765	10.7613
18	2.0258	2.4066	2.8543	3.3799	3.9960	4.7171	5.5599	7.6900	10.5752	12.3755
19	2.1068	2.5270	3.0256	3.6165	4.3157	5.1417	6.1159	8.6128	12.0557	14.2318
20	2.1911	2.6533	3.2071	3.8697	4.6610	5.6044	6.7275	9.6463	13.7435	16.3665
21	2.2788	2.7860	3.3996	4.1406	5.0338	6.1088	7.4002	10.8038	15.6676	18.8215
22	2.3699	2.9253	3.6035	4.4304	5.4365	6.6586	8.1403	12.1003	17.8610	21.6447
23	2.4647	3.0715	3.8197	4.7405	5.8715	7.2579	8.9543	13.5523	20.3616	24.8915
24	2.5633	3.2251	4.0489	5.0724	6.3412	7.9111	9.8497	15.1786	23.2122	28.6252
25	2.6658	3.3864	4.2919	5.4274	6.8485	8.6231	10.8347	17.0001	26.4619	32.9190
26	2.7725	3.5557	4.5494	5.8074	7.3964	9.3992	11.9182	19.0401	30.1666	37.8568
27	2.8834	3.7335	4.8223	6.2139	7.9881	10.2451	13.1100	21.3249	34.3899	43.5353
28	2.9987	3.9201	5.1117	6.6488	8.6271	11.1671	14.4210	23.8839	39.2045	50.0656
29	3.1187	4.1161	5.4184	7.1143	9.3173	12.1722	15.8631	26.7499	44.6931	57.5755
30	3.2434	4.3219	5.7435	7.6123	10.0627	13.2677	17.4494	29.9599	50.9502	66.2118
40	4.8010	7.0400	10.2857	14.9745	21.7245	31.4094	45.2593	93.0510	188.8835	267.8635
50	7.1067	11.4674	18.4202	29.4570	46.9016	74.3575	117.3909	289.0022	700.2330	1083.6600
60	10.5196	18.6792	32.9877	57.9464	101.2571	176.0313	304.4816	897.5969	2595.9200	4384.0000

Present Value of \$1

Period	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%
1	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696
2	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264	0.7972	0.7695	0.7561
3	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513	0.7118	0.6750	0.6575
4	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6355	0.5921	0.5718
5	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5674	0.5194	0.4972
6	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645	0.5066	0.4556	0.4323
7	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4523	0.3996	0.3759
8	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4039	0.3506	0.3269
9	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3606	0.3075	0.2843
10	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855	0.3220	0.2697	0.2472
11	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3505	0.2875	0.2366	0.2149
12	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	0.2567	0.2076	0.1869
13	0.6006	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2292	0.1821	0.1625
14	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992	0.2633	0.2046	0.1597	0.1413
15	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.1827	0.1401	0.1229
17	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1456	0.1078	0.0929
18	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120	0.1799	0.1300	0.0946	0.0808
19	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945	0.1635	0.1161	0.0829	0.0703
20	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784	0.1486	0.1037	0.0728	0.0611
25	0.3751	0.2953	0.2330	0.1842	0.1460	0.1160	0.0923	0.0588	0.0378	0.0304
30	0.3083	0.2314	0.1741	0.1314	0.0994	0.0754	0.0573	0.0334	0.0196	0.0151
40	0.2083	0.1420	0.0972	0.0668	0.0460	0.0318	0.0221	0.0107	0.0053	0.0037
50	0.1407	0.0872	0.0543	0.0339	0.0213	0.0134	0.0085	0.0035	0.0014	0.0009
60	0.0951	0.0535	0.0303	0.0173	0.0099	0.0057	0.0033	0.0011	0.0004	0.0002

Present Value of \$1 at a Stated Annual Interest Rate Compounded Monthly

Number of Years	4%	5%	6%	7%	8%	9%	10%	11%	12%	14%
1	0.9609	0.9513	0.9419	0.9326	0.9234	0.9142	0.9052	0.8963	0.8874	0.8701
2	0.9232	0.9050	0.8872	0.8697	0.8526	0.8358	0.8194	0.8033	0.7876	0.7570
3	0.8871	0.8610	0.8356	0.8111	0.7873	0.7641	0.7417	0.7200	0.6989	0.6586
4	0.8524	0.8191	0.7871	0.7564	0.7269	0.6986	0.6714	0.6453	0.6203	0.5731
5	0.8190	0.7792	0.7414	0.7054	0.6712	0.6387	0.6078	0.5784	0.5504	0.4986
6	0.7869	0.7413	0.6983	0.6578	0.6198	0.5839	0.5502	0.5184	0.4885	0.4338
7	0.7561	0.7052	0.6577	0.6135	0.5723	0.5338	0.4980	0.4646	0.4335	0.3774
8	0.7265	0.6709	0.6195	0.5721	0.5284	0.4881	0.4508	0.4164	0.3847	0.3284
9	0.6981	0.6382	0.5835	0.5336	0.4879	0.4462	0.4081	0.3733	0.3414	0.2857
10	0.6708	0.6072	0.5496	0.4976	0.4505	0.4079	0.3694	0.3345	0.3030	0.2486
11	0.6445	0.5776	0.5177	0.4641	0.4160	0.3730	0.3344	0.2998	0.2689	0.2163
12	0.6193	0.5495	0.4876	0.4328	0.3841	0.3410	0.3027	0.2687	0.2386	0.1882
13	0.5950	0.5228	0.4593	0.4036	0.3547	0.3117	0.2740	0.2409	0.2118	0.1637
14	0.5717	0.4973	0.4326	0.3764	0.3275	0.2850	0.2480	0.2159	0.1879	0.1425
15	0.5494	0.4731	0.4075	0.3510	0.3024	0.2605	0.2245	0.1935	0.1668	0.1240
20	0.4499	0.3686	0.3021	0.2476	0.2030	0.1664	0.1365	0.1119	0.0918	0.0618
25	0.3685	0.2872	0.2240	0.1747	0.1362	0.1063	0.0829	0.0647	0.0505	0.0308
30	0.3018	0.2238	0.1660	0.1232	0.0914	0.0679	0.0504	0.0374	0.0278	0.0154

Present Value of an Annuity of \$1 per Month for n Years

Number of Years	4%	5%	6%	7%	8%	9%	10%	11%	12%	14%
1	11.7440	11.6812	11.6189	11.5571	11.4958	11.4349	11.3745	11.3146	11.2551	11.1375
2	23.0283	22.7939	22.5629	22.3351	22.1105	21.8891	21.6709	21.4556	21.2434	20.8277
3	33.8708	33.3657	32.8710	32.3865	31.9118	31.4468	30.9912	30.5449	30.1075	29.2589
4	44.2888	43.4230	42.5803	41.7602	40.9619	40.1848	39.4282	38.6914	37.9740	36.5945
5	54.2991	52.9907	51.7256	50.5020	49.3184	48.1734	47.0654	45.9930	44.9550	42.9770
6	63.9174	62.0928	60.3395	58.6544	57.0345	55.4768	53.9787	52.5373	51.1504	48.5302
7	73.1593	70.7518	68.4530	66.2573	64.1593	62.1540	60.2367	58.4029	56.6485	53.3618
8	82.0393	78.9894	76.0952	73.3476	70.7380	68.2584	65.9015	63.6601	61.5277	57.5655
9	90.5718	86.8261	83.2934	79.9598	76.8125	73.8394	71.0294	68.3720	65.8578	61.2231
10	98.7702	94.2814	90.0735	86.1264	82.4215	78.9417	75.6712	72.5953	69.7005	64.4054
11	106.6476	101.3737	96.4596	91.8771	87.6006	83.6064	79.8730	76.3805	73.1108	67.1742
12	114.2167	108.1209	102.4747	97.2402	92.3828	87.8711	83.6765	79.7731	76.1372	69.5833
13	121.4895	114.5397	108.1404	102.2417	96.7985	91.7700	87.1195	82.8139	78.8229	71.6793
14	128.4776	120.6461	113.4770	106.9061	100.8758	95.3346	90.2362	85.5392	81.2064	73.5029
15	135.1921	126.4552	118.5035	111.2560	104.6406	98.5934	93.0574	87.9819	83.3217	75.0897
20	165.0219	151.5253	139.5808	128.9825	119.5543	111.1450	103.6246	96.8815	90.8194	80.4168
25	189.4525	171.0600	155.2069	141.4869	129.5645	119.1616	110.0472	102.0290	94.9466	83.0730
30	209.4612	186.2816	166.7916	150.3076	136.2835	124.2819	113.9508	105.0063	97.2183	84.3973