

Table A-1. Present Value of \$1.00 for selected years and discount rates

YEARS/RATE	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	16%	18%	20%	24%	28%	32%	36%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091	.8929	.8772	.8621	.8475	.8333	.8065	.7813	.7576	.7353
2	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264	.7972	.7695	.7432	.7182	.6944	.6504	.6104	.5739	.5407
3	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513	.7118	.6750	.6407	.6086	.5787	.5245	.4768	.4348	.3975
4	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830	.6355	.5921	.5523	.5158	.4823	.4230	.3725	.3294	.2923
5	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209	.5764	.5194	.4761	.4371	.4019	.3411	.2910	.2495	.2149
6	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645	.5066	.4556	.4104	.3704	.3349	.2751	.2274	.1890	.1580
7	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132	.4523	.3996	.3538	.3139	.2791	.2218	.1776	.1432	.1162
8	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665	.4039	.3506	.3050	.2660	.2326	.1789	.1388	.1085	.0854
9	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241	.3606	.3075	.2630	.2255	.1938	.1443	.1084	.0822	.0628
10	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855	.3220	.2697	.2267	.1911	.1615	.1164	.0847	.0623	.0462
11	.8963	.8013	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505	.2875	.2366	.1954	.1619	.1346	.0938	.0662	.0472	.0340
12	.8874	.7835	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186	.2567	.2076	.1685	.1372	.1122	.0757	.0517	.0357	.0250
13	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897	.2292	.1821	.1452	.1163	.0935	.0610	.0404	.0271	.0164
14	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633	.2046	.1597	.1252	.0985	.0779	.0492	.0316	.0205	.0135
15	.8613	.7430	.6419	.5553	.4810	.4173	.3624	.3152	.2754	.2394	.1827	.1401	.1079	.0835	.0649	.0397	.0247	.0155	.0099
16	.8528	.7284	.6252	.5339	.4581	.3936	.3387	.2919	.2519	.2176	.1631	.1229	.0930	.0708	.0541	.0320	.0193	.0118	.0073
17	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978	.1456	.1078	.0802	.0600	.0451	.0258	.0150	.0089	.0054
18	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799	.1300	.0946	.0691	.0508	.0376	.0208	.0118	.0068	.0039
19	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635	.1161	.0829	.0596	.0431	.0313	.0168	.0092	.0051	.0029
20	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486	.1037	.0728	.0514	.0365	.0261	.0135	.0072	.0039	.0021
21	.8114	.6599	.5375	.4389	.3589	.2942	.2415	.1987	.1637	.1351	.0927	.0638	.0443	.0309	.0217	.0109	.0056	.0029	.0016
22	.8034	.6468	.5219	.4220	.3418	.2775	.2257	.1839	.1502	.1228	.0826	.0560	.0382	.0262	.0181	.0088	.0044	.0022	.0012
23	.7954	.6342	.5067	.4057	.3256	.2618	.2109	.1703	.1378	.1117	.0738	.0491	.0329	.0222	.0151	.0071	.0034	.0017	.0008
24	.7876	.6217	.4919	.3901	.3101	.2470	.1971	.1577	.1264	.1015	.0659	.0431	.0284	.0188	.0126	.0057	.0027	.0013	.0006
25	.7798	.6095	.4776	.3751	.2953	.2350	.1842	.1460	.1160	.0923	.0588	.0378	.0245	.0160	.0105	.0046	.0021	.0010	.0005
30	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573	.0333	.0196	.0116	.0070	.0042	.0016	.0006	.0002	.0001

Table A-2. Future Value of \$1.00 for selected years and discount rates

YEARS/RATE	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	16%	18%	20%	24%	28%	32%	36%
1	1.0100	1.0200	1.0300	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900	1.1000	1.1200	1.1400	1.1600	1.1800	1.2000	1.2400	1.2800	1.3200	1.3600
2	1.0201	1.0404	1.0609	1.0816	1.1025	1.1236	1.1449	1.1664	1.1881	1.2100	1.2544	1.2996	1.3456	1.3924	1.4400	1.5376	1.6384	1.7424	1.8496
3	1.0303	1.0612	1.0927	1.1249	1.1576	1.1910	1.2250	1.2597	1.2950	1.3310	1.4049	1.4815	1.5609	1.6430	1.7280	1.9066	2.0972	2.3000	2.5155
4	1.0406	1.0824	1.1255	1.1699	1.2155	1.2625	1.3108	1.3605	1.4116	1.4641	1.5735	1.6890	1.8106	1.9388	2.0736	2.3642	2.6844	3.0360	3.4210
5	1.0510	1.1041	1.1593	1.2167	1.2763	1.3382	1.4026	1.4693	1.5386	1.6105	1.7623	1.9254	2.1003	2.2876	2.4883	2.9316	3.4360	4.0075	4.6526
6	1.0615	1.1262	1.1941	1.2653	1.3401	1.4185	1.5007	1.5869	1.6771	1.7716	1.9738	2.1950	2.4364	2.6996	2.9860	3.6352	4.3980	5.2899	6.3275
7	1.0721	1.1487	1.2299	1.3159	1.4071	1.5036	1.6058	1.7138	1.8220	1.9487	2.2107	2.5023	2.8262	3.1855	3.5832	4.5077	5.6295	6.9826	8.6054
8	1.0829	1.1717	1.2668	1.3586	1.4775	1.5938	1.7182	1.8509	1.9926	2.1436	2.4760	2.8526	3.2784	3.7589	4.2998	5.5895	7.2058	9.2170	11.703
9	1.0937	1.1951	1.3048	1.4233	1.5513	1.6895	1.8385	1.9990	2.1719	2.3579	2.7731	3.2519	3.8030	4.4355	5.1598	6.9310	9.2234	12.166	15.917
10	1.1046	1.2190	1.3439	1.4802	1.6290	1.7908	1.9672	2.1589	2.3674	2.5937	3.1058	3.7072	4.4114	5.2338	6.1917	8.5944	11.806	16.060	21.647
11	1.1157	1.2434	1.3842	1.5396	1.7103	1.8983	2.1049	2.3316	2.5804	2.8531	3.4785	4.2262	5.1173	6.1759	7.4301	10.657	15.112	21.199	29.439
12	1.1268	1.2682	1.4258	1.6010	1.7959	2.0122	2.2522	2.5182	2.8127	3.1384	3.8960	4.8179	5.9360	7.2876	8.9161	13.215	19.343	27.983	40.037
13	1.1381	1.2936	1.4685	1.6651	1.8856	2.1329	2.4098	2.7196	3.0658	3.4523	4.3635	5.4924	6.8858	8.5994	10.699	16.386	24.759	36.937	54.451
14	1.1495	1.3195	1.5126	1.7317	1.9799	2.2609	2.5785	2.9372	3.3417	3.7975	4.8871	6.2613	7.9875	10.147	12.839	20.319	31.691	48.757	74.053
15	1.1610	1.3459	1.5580	1.8009	2.0789	2.3966	2.7590	3.1722	3.6425	4.1772	5.4736	7.1379	9.2655	11.974	15.407	25.196	40.565	64.359	100.71
16	1.1726	1.3728	1.6047	1.8730	2.1829	2.5404	2.9522	3.4259	3.9703	4.5950	6.1304	8.1272	10.748	14.129	18.488	31.243	51.923	84.954	136.97
17	1.1843	1.4002	1.6528	1.9479	2.2920	2.6928	3.1588	3.7000	4.3276	5.0545	6.8660	9.2765	12.468	16.672	22.186	38.741	66.461	112.14	186.28
18	1.1961	1.4282	1.7024	2.0258	2.4068	2.8543	3.3799	3.9660	4.7171	5.5599	7.6900	10.575	14.463	19.673	26.623	48.039	85.071	148.02	253.34
19	1.2081	1.4568	1.7535	2.1068	2.5270	3.0256	3.6165	4.3157	5.1417	6.1159	8.6128	12.056	16.777	23.214	31.946	59.568	108.89	195.39	344.54
20	1.2202	1.4859	1.8061	2.1911	2.6533	3.2071	3.8697	4.6610	5.6044	6.7275	9.6463	13.743	19.461	27.393	38.338	73.864	139.38	257.92	468.57
21	1.2324	1.5157	1.8603	2.2788	2.7860	3.3996	4.1406	5.0338	6.1088	7.4002	10.604	15.668	22.574	32.324	46.005	91.592	178.41	340.45	637.26
22	1.2447	1.5460	1.9161	2.3699	2.9253	3.6035	4.4304	5.4365	6.6588	8.1403	12.100	17.861	26.166	38.142	55.206	113.57	228.36	449.39	866.67
23	1.2572	1.5789	1.9736	2.4647	3.0715	3.8197	4.7405	5.8715	7.2579	8.9543	13.552	20.362	30.376	45.000	66.247	140.83	292.30	593.20	1178.7
24	1.2697	1.6084	2.0328	2.5633	3.2251	4.0489	5.0724	6.3412	7.9111	9.8497	15.179	23.212	35.236	53.109	79.497	174.63	374.14	783.02	1603.0
25	1.2824	1.6406	2.0938	2.6658	3.3864	4.2919	5.4274	6.8485	8.6231	10.835	17.000	26.462	40.874	62.669	95.396	216.54	478.90	1033.6	2180.1
30	1.3478	1.8184	2.4273	3.2434	4.3219	5.7435	7.6123	10.063	13.268	17.449	29.960	50.950	85.850	143.37	237.38	634.82	1645.5	4142.1	10143.

Table A-3. Present value of an annuity of \$1.00 per period for selected years and discount rates

YEARS/RATE	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9316	0.9259	0.9174	0.9091	0.8929	0.8772	0.8621	0.8475	0.8333	0.8065	0.7813	0.7612
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8344	1.8080	1.7853	1.7591	1.7355	1.6901	1.6467	1.6052	1.5656	1.5278	1.4568	1.3916	1.3310
3	2.9410	2.8669	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4868	2.4018	2.3216	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.8620	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.7952	2.6901	2.5887	2.4043	2.3410	2.0957
5	4.8534	4.7135	4.5797	4.4518	4.5295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.2743	3.1272	2.9906	2.7464	2.5320	2.3452
6	5.7955	5.6314	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.1859	4.3553	4.1114	3.8887	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5823	5.3993	5.2064	5.0330	4.8684	4.5638	4.2683	4.0386	3.8115	3.6018	3.2423	2.9370	2.6775
8	7.6517	7.3155	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3319	4.9676	4.6369	4.3136	4.0776	3.8372	3.4212	3.0758	2.7860
9	8.5860	8.1622	7.7861	7.4453	7.1076	6.8617	6.5152	6.2469	5.9952	5.7590	5.3282	4.9164	4.6065	4.3850	4.0310	3.5655	3.1812	2.8061
10	9.4713	8.9826	8.5362	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	10.367	9.7868	9.2526	8.7665	8.3064	7.8869	7.4587	7.1390	6.8052	6.4951	5.9377	5.4527	5.0286	4.6560	4.3271	3.7757	3.3351	2.9778
12	11.255	10.575	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.1971	4.7932	4.4392	3.8514	3.3988	3.0133
13	12.133	11.348	10.637	9.9856	9.3536	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	13.004	12.106	11.296	10.569	9.8986	9.2950	8.7455	8.2242	7.7862	7.3667	6.6282	6.0021	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	13.865	12.849	11.988	11.118	10.379	9.7122	9.1079	8.5695	8.0607	7.6061	6.8109	6.1422	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	14.718	13.578	12.561	11.652	10.818	10.106	9.4168	8.8514	8.3126	7.8237	6.9740	6.2651	5.6685	5.1624	4.7296	4.0333	3.5026	3.0892
17	15.603	14.292	13.160	12.166	11.274	10.477	9.7632	9.1210	8.5412	8.0218	7.1196	6.3729	5.7487	5.2223	4.7748	4.0591	3.5177	3.0971
18	16.698	14.997	13.754	12.659	11.688	10.828	10.059	9.3719	8.7556	8.2014	7.2496	6.4671	5.8178	5.2732	4.8122	4.0709	3.5294	3.1019
19	17.238	15.679	14.328	13.134	12.085	11.158	10.334	9.6036	8.9501	8.3649	7.3658	6.5504	5.8775	5.3182	4.8435	4.0967	3.5386	3.1090
20	18.046	16.351	14.878	13.693	12.462	11.459	10.594	9.8181	9.1205	8.5136	7.4694	6.6231	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
21	18.654	17.911	15.415	14.029	12.821	11.764	10.836	10.017	9.2922	8.6187	7.5620	6.6870	5.9731	5.3837	4.8913	4.1212	3.5514	3.1158
22	19.660	17.659	16.016	14.451	13.160	12.041	11.061	10.201	9.4124	8.7715	7.6446	6.7429	6.0113	5.4099	4.9094	4.1300	3.5538	3.1180
23	20.456	18.292	16.444	14.856	13.388	12.363	11.272	10.371	9.5802	8.8802	7.7143	6.7921	6.0442	5.4323	4.9245	4.1371	3.5592	3.1197
24	21.243	18.914	16.936	15.247	13.796	12.550	11.469	10.527	9.7066	8.9847	7.7843	6.8351	6.0726	5.4509	4.9371	4.1428	3.5619	3.1210
25	22.023	19.524	17.413	15.622	14.094	12.783	11.654	10.675	9.8226	9.0770	7.8431	6.8729	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	25.808	22.397	19.600	17.292	15.373	13.705	12.409	11.258	10.274	9.4269	8.0552	7.0027	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242

Table A-4. Future value of an annuity of \$1.00 per period for selected years and discount rates																		
YEARS/RATE	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	16%	18%	20%	24%	28%	32%
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.1000	2.1200	2.1400	2.1600	2.1800	2.2000	2.2400	2.2800	2.3200
3	3.0301	3.0604	3.0909	3.1216	3.1525	3.1836	3.2149	3.2464	3.2781	3.3100	3.3744	3.4396	3.5056	3.5724	3.6400	3.7776	3.9184	4.0624
4	4.0604	4.1216	4.1836	4.2465	4.3101	4.3746	4.4399	4.5061	4.5731	4.6410	4.7793	4.9211	5.0665	5.2154	5.3680	5.6842	6.0158	6.3624
5	5.1010	5.2040	5.3091	5.4163	5.5255	5.6371	5.7507	5.8666	5.9847	6.1051	6.3528	6.6101	6.8771	7.1542	7.4418	8.0484	8.6999	9.3983
6	6.1520	6.3081	6.4684	6.6390	6.8019	6.9753	7.1533	7.3359	7.5233	7.7156	8.1152	8.5353	8.9776	9.4420	9.9290	10.080	12.130	13.406
7	7.2135	7.4343	7.6625	7.8983	8.1420	8.3938	8.6540	8.9228	9.2004	9.4872	10.089	10.730	11.414	12.142	12.916	14.615	16.534	18.690
8	8.2857	8.5830	8.8923	9.2142	9.5491	9.8975	10.260	10.637	11.028	11.436	12.300	13.233	14.240	15.327	16.493	19.123	22.163	25.678
9	9.3685	9.7546	10.159	10.583	11.027	11.491	11.978	12.488	13.021	13.579	14.776	16.085	17.519	19.066	20.799	24.712	29.369	34.895
10	10.462	10.950	11.464	12.006	12.578	13.181	13.816	14.487	15.193	15.937	17.549	19.337	21.321	23.521	25.959	31.643	38.593	47.062
11	11.567	12.169	12.808	13.486	14.207	14.972	15.784	16.645	17.560	18.531	20.655	23.045	25.733	28.755	32.150	40.238	50.396	63.122
12	12.686	13.412	14.192	15.026	15.917	16.870	17.888	18.977	20.141	21.384	24.133	27.271	30.850	34.931	39.581	50.895	65.510	84.320
13	13.809	14.680	15.618	16.627	17.713	18.882	20.141	21.495	22.953	24.523	28.029	32.089	36.786	42.219	48.497	64.110	84.853	112.30
14	14.947	15.974	17.086	18.292	19.599	21.015	22.550	24.215	26.019	27.975	32.393	37.581	43.672	50.818	59.196	80.496	109.61	149.24
15	16.097	17.293	18.599	20.024	21.579	23.276	25.129	27.152	29.361	31.772	37.280	43.842	51.660	60.965	72.035	100.82	141.30	196.00
16	17.258	18.639	20.157	21.825	23.657	25.673	27.888	30.324	33.003	35.950	42.753	50.980	60.925	72.939	87.442	126.01	181.87	262.36
17	18.430	20.012	21.762	23.698	25.840	28.213	30.840	33.750	36.974	40.545	48.884	59.118	71.673	87.068	105.93	157.25	233.79	347.31
18	19.615	21.412	23.414	25.645	28.132	30.906	33.999	37.450	41.301	45.599	55.750	68.394	84.141	103.74	128.12	195.99	300.25	459.45
19	20.811	22.841	25.117	27.671	30.539	33.760	37.379	41.446	46.018	51.159	63.440	78.969	98.603	123.41	154.74	244.03	385.32	607.47
20	22.019	24.297	26.870	29.778	33.066	36.786	40.995	45.762	51.160	57.275	72.052	91.025	115.38	146.63	186.69	303.60	494.21	802.86
21	23.239	25.783	28.676	31.969	35.719	39.993	44.865	50.423	56.765	64.002	81.699	104.77	134.84	174.02	225.03	377.46	633.59	1060.8
22	24.472	27.299	30.537	34.248	38.505	43.392	49.006	55.457	62.873	71.403	92.503	120.44	157.41	203.34	271.03	469.06	812.00	1401.2
23	25.716	28.845	32.453	36.618	41.430	46.996	53.436	60.893	69.532	79.543	104.60	138.30	183.60	244.49	326.24	582.63	1040.4	1850.6
24	26.973	30.422	34.426	39.083	44.502	50.816	58.177	66.765	76.790	88.497	118.16	158.66	213.96	289.49	392.48	723.46	1332.7	2443.6
25	28.243	32.030	36.459	41.646	47.727	54.865	63.249	73.106	84.701	98.347	133.33	181.87	249.21	342.60	471.98	898.09	1706.6	3226.8
30	34.785	40.568	47.575	56.085	66.439	79.058	94.461	113.28	136.31	164.49	241.33	356.79	530.31	790.95	1181.9	2640.9	5873.2	12941.