APPENDIX C

Interest and Annuity Tables for Discrete Compounding

For various values of i from $\frac{1}{4}\%$ to 25%

i = effective interest rate per period (usually one year)
N = number of compounding periods

$$(F/P, i\%, N) = (1+i)^N$$

$$(P/F, i\%, N) = \frac{1}{(1+i)^N}$$

$$(F/A, i\%, N) = \frac{(1+i)^N - 1}{i}$$

$$(P/A, i\%, N) = \frac{(1+i)^N - 1}{i(1+i)^N}$$

$$(A/F, i\%, N) = \frac{i}{(1+i)^N - 1}$$

$$(A/P, i\%, N) = \frac{i(1+i)^N}{(1+i)^N - 1}$$

$$(P/G, i\%, N) = \frac{1}{i}\left[\frac{(1+i)^N - 1}{i(1+i)^N} - \frac{N}{(1+i)^N}\right]$$

$$(A/G, i\%, N) = \frac{1}{i} - \frac{N}{(1+i)^N - 1}$$

TABLE C-1 Discrete Compounding; $i = \frac{1}{4}\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.0025	0.9975	1.0000	0.9975	1.0000	1.0025	0.000	0.0000	1
2	1.0050	0.9950	2.0025	1.9925	0.4994	0.5019	0.995	0.4994	2
3	1.0075	0.9925	3.0075	2.9851	0.3325	0.3350	2.980	0.9983	3
4	1.0100	0.9901	4.0150	3.9751	0.2491	0.2516	5.950	1.4969	4
5	1.0126	0.9876	5.0251	4.9627	0.1990	0.2015	9.901	1.9950	5
6	1.0151	0.9851	6.0376	5.9478	0.1656	0.1681	14.826	2.4927	6
7	1.0176	0.9827	7.0527	6.9305	0.1418	0.1443	20.722	2.9900	7
8	1.0202	0.9802	8.0704	7.9107	0.1239	0.1264	27.584	3.4869	8
9	1.0227	0.9778	9.0905	8.8885	0.1100	0.1125	35.406	3.9834	9
10	1.0253	0.9753	10.1133	9.8639	0.0989	0.1014	44.184	4.4794	10
11	1.0278	0.9729	11.1385	10.8368	0.0898	0.0923	53.913	4.9750	11
12	1.0304	0.9705	12.1664	11.8073	0.0822	0.0847	64.589	5.4702	12
13	1.0330	0.9681	13.1968	12.7753	0.0758	0.0783	76.205	5.9650	13
14	1.0356	0.9656	14.2298	13.7410	0.0703	0.0728	88.759	6.4594	14
15	1.0382	0.9632	15.2654	14.7042	0.0655	0.0680	102.244	6.9534	15
16	1.0408	0.9608	16.3035	15.6650	0.0613	0.0638	116.657	7.4469	16
17	1.0434	0.9584	17.3443	16.6235	0.0577	0.0602	131.992	7.9401	17
18	1.0460	0.9561	18.3876	17.5795	0.0544	0.0569	148.245	8.4328	18
19	1.0486	0.9537	19.4336	18.5332	0.0515	0.0540	165.411	8.9251	19
20	1.0512	0.9513	20.4822	19.4845	0.0488	0.0513	183.485	9.4170	20
21	1.0538	0.9489	21.5334	20.4334	0.0464	0.0489	202.463	9.9085	21
22	1.0565	0.9466	22.5872	21.3800	0.0443	0.0468	222.341	10.3995	22
23	1.0591	0.9442	23.6437	22.3241	0.0423	0.0448	243.113	10.8901	23
24	1.0618	0.9418	24.7028	23.2660	0.0405	0.0430	264.775	11.3804	24
25	1.0644	0.9395	25.7646	24.2055	0.0388	0.0413	287.323	11.8702	25
30	1.0778	0.9278	31.1133	28.8679	0.0321	0.0346	413.185	14.3130	30
36	1.0941	0.9140	37.6206	34.3865	0.0266	0.0291	592.499	17.2306	36
40	1.1050	0.9050	42.0132	38.0199	0.0238	0.0263	728.740	19.1673	40
48	1.1273	0.8871	50.9312	45.1787	0.0196	0.0221	1040.055	23.0209	48
60	1.1616	0.8609	64.6467	55.6524	0.0155	0.0180	1600.085	28.7514	60
72	1.1969	0.8355	78.7794	65.8169	0.0127	0.0152	2265.557	34.4221	72
84	1.2334	0.8108	93.3419	75.6813	0.0107	0.0132	3029.759	40.0331	84
100	1.2836	0.7790	113.4500	88.3825	0.0088	0.0113	4191.242	47.4216	100
∞				400.0000		0.0025			∞

TABLE C-2 Discrete Compounding; $i = \frac{1}{2}\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.0050	0.9950	1.0000	0.9950	1.0000	1.0050	0.000	0.0000	1
2	1.0100	0.9901	2.0050	1.9851	0.4988	0.5038	0.990	0.4988	2
3	1.0151	0.9851	3.0150	2.9702	0.3317	0.3367	2.960	0.9967	3
4	1.0202	0.9802	4.0301	3.9505	0.2481	0.2531	5.901	1.4938	4
5	1.0253	0.9754	5.0503	4.9259	0.1980	0.2030	9.803	1.9900	5
6	1.0304	0.9705	6.0755	5.8964	0.1646	0.1696	14.655	2.4855	6
7	1.0355	0.9657	7.1059	6.8621	0.1407	0.1457	20.449	2.9801	7
8	1.0407	0.9609	8.1414	7.8230	0.1228	0.1278	27.176	3.4738	8
9	1.0459	0.9561	9.1821	8.7791	0.1089	0.1139	34.824	3.9668	9
10	1.0511	0.9513	10.2280	9.7304	0.0978	0.1028	43.387	4.4589	10
11	1.0564	0.9466	11.2792	10.6770	0.0887	0.0937	52.853	4.9501	11
12	1.0617	0.9419	12.3356	11.6189	0.0811	0.0861	63.214	5.4406	12
13	1.0670	0.9372	13.3972	12.5562	0.0746	0.0796	74.460	5.9302	13
14	1.0723	0.9326	14.4642	13.4887	0.0691	0.0741	86.584	6.4190	14
15	1.0777	0.9279	15.5365	14.4166	0.0644	0.0694	99.574	6.9069	15
16	1.0831	0.9233	16.6142	15.3399	0.0602	0.0652	113.424	7.3940	16
17	1.0885	0.9187	17.6973	16.2586	0.0565	0.0615	128.123	7.8803	17
18	1.0939	0.9141	18.7858	17.1728	0.0532	0.0582	143.663	8.3658	18
19	1.0994	0.9096	19.8797	18.0824	0.0503	0.0553	160.036	8.8504	19
20	1.1049	0.9051	20.9791	18.9874	0.0477	0.0527	177.232	9.3342	20
21	1.1104	0.9006	22.0840	19.8880	0.0453	0.0503	195.243	9.8172	21
22	1.1160	0.8961	23.1944	20.7841	0.0431	0.0481	214.061	10.2993	22
23	1.1216	0.8916	24.3104	21.6757	0.0411	0.0461	233.677	10.7806	23
24	1.1272	0.8872	25.4320	22.5629	0.0393	0.0443	254.082	11.2611	24
25	1.1328	0.8828	26.5591	23.4456	0.0377	0.0427	275.269	11.7407	25
30	1.1614	0.8610	32.2800	27.7941	0.0310	0.0360	392.632	14.1265	30
36	1.1967	0.8356	39.3361	32.8710	0.0254	0.0304	557.560	16.9621	36
40	1.2208	0.8191	44.1588	36.1722	0.0226	0.0276	681.335	18.8359	40
48	1.2705	0.7871	54.0978	42.5803	0.0185	0.0235	959.919	22.5437	48
60	1.3489	0.7414	69.7700	51.7256	0.0143	0.0193	1448.646	28.0064	60
72	1.4320	0.6983	86.4089	60.3395	0.0116	0.0166	2012.348	33.3504	72
84	1.5204	0.6577	104.0739	68.4530	0.0096	0.0146	2640.664	38.5763	84
100	1.6467	0.6073	129.3337	78.5426	0.0077	0.0127	3562.793	45.3613	100
∞				200.0000		0.0050			∞

TABLE C-3 Discrete Compounding; $i = \frac{3}{4}\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.0075	0.9926	1.0000	0.9926	1.0000	1.0075	0.000	0.0000	1
2	1.0151	0.9852	2.0075	1.9777	0.4981	0.5056	0.985	0.4981	2
3	1.0227	0.9778	3.0226	2.9556	0.3308	0.3383	2.941	0.9950	3
4	1.0303	0.9706	4.0452	3.9261	0.2472	0.2547	5.853	1.4907	4
5	1.0381	0.9633	5.0756	4.8894	0.1970	0.2045	9.706	1.9851	5
6	1.0459	0.9562	6.1136	5.8456	0.1636	0.1711	14.487	2.4782	6
7	1.0537	0.9490	7.1595	6.7946	0.1397	0.1472	20.181	2.9701	7
8	1.0616	0.9420	8.2132	7.7366	0.1218	0.1293	26.775	3.4608	8
9	1.0696	0.9350	9.2748	8.6716	0.1078	0.1153	34.254	3.9502	9
10	1.0776	0.9280	10.3443	9.5996	0.0967	0.1042	42.606	4.4384	10
11	1.0857	0.9211	11.4219	10.5207	0.0876	0.0951	51.817	4.9253	11
12	1.0938	0.9142	12.5076	11.4349	0.0800	0.0875	61.874	5.4110	12
13	1.1020	0.9074	13.6014	12.3423	0.0735	0.0810	72.763	5.8954	13
14	1.1103	0.9007	14.7034	13.2430	0.0680	0.0755	84.472	6.3786	14
15	1.1186	0.8940	15.8137	14.1370	0.0632	0.0707	96.988	6.8606	15
16	1.1270	0.8873	16.9323	15.0243	0.0591	0.0666	110.297	7.3413	16
17	1.1354	0.8807	18.0593	15.9050	0.0554	0.0629	124.389	7.8207	17
18	1.1440	0.8742	19.1947	16.7792	0.0521	0.0596	139.249	8.2989	18
19	1.1525	0.8676	20.3387	17.6468	0.0492	0.0567	154.867	8.7759	19
20	1.1612	0.8612	21.4912	18.5080	0.0465	0.0540	171.230	9.2516	20
21	1.1699	0.8548	22.6524	19.3628	0.0441	0.0516	188.325	9.7261	21
22	1.1787	0.8484	23.8223	20.2112	0.0420	0.0495	206.142	10.1994	22
23	1.1875	0.8421	25.0010	21.0533	0.0400	0.0475	224.668	10.6714	23
24	1.1964	0.8358	26.1885	21.8891	0.0382	0.0457	243.892	11.1422	24
25	1.2054	0.8296	27.3849	22.7188	0.0365	0.0440	263.803	11.6117	25
30	1.2513	0.7992	33.5029	26.7751	0.0298	0.0373	373.263	13.9407	30
36	1.3086	0.7641	41.1527	34.4468	0.0243	0.0318	524.992	16.6946	36
40	1.3483	0.7416	46.4464	34.4469	0.0215	0.0290	637.469	18.5058	40
48	1.4314	0.6986	57.5207	40.1848	0.0174	0.0249	886.840	22.0691	48
60	1.5657	0.6387	75.4241	48.1734	0.0133	0.0208	1313.519	27.2665	60
72	1.7126	0.5839	95.0070	55.4768	0.0105	0.0180	1791.246	32.2882	72
84	1.8732	0.5338	116.4269	62.1540	0.0086	0.0161	2308.128	37.1357	84
100	2.1111	0.4737	148.1445	70.1746	0.0068	0.0143	3040.745	43.3311	100
∞				133.3333		0.0075			∞

TABLE C-4 Discrete Compounding; $i = 1\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.0100	0.9901	1.0000	0.9901	1.0000	1.0100	0.000	0.0000	1
2	1.0201	0.9803	2.0100	1.9704	0.4975	0.5075	0.980	0.4975	2
3	1.0303	0.9706	3.0301	2.9410	0.3300	0.3400	2.922	0.9934	3
4	1.0406	0.9610	4.0604	3.9020	0.2463	0.2563	5.804	1.4876	4
5	1.0510	0.9515	5.1010	4.8534	0.1960	0.2060	9.610	1.9801	5
6	1.0615	0.9420	6.1520	5.7955	0.1625	0.1725	14.321	2.4710	6
7	1.0721	0.9327	7.2135	6.7282	0.1386	0.1486	19.917	2.9602	7
8	1.0829	0.9235	8.2857	7.6517	0.1207	0.1307	26.381	3.4478	8
9	1.0937	0.9143	9.3685	8.5660	0.1067	0.1167	33.696	3.9337	9
10	1.1046	0.9053	10.4622	9.4713	0.0956	0.1056	41.844	4.4179	10
11	1.1157	0.8963	11.5668	10.3676	0.0865	0.0965	50.807	4.9005	11
12	1.1268	0.8874	12.6825	11.2551	0.0788	0.0888	60.569	5.3815	12
13	1.1381	0.8787	13.8093	12.1337	0.0724	0.0824	71.113	5.8607	13
14	1.1495	0.8700	14.9474	13.0037	0.0669	0.0769	82.422	6.3384	14
15	1.1610	0.8613	16.0969	13.8651	0.0621	0.0721	94.481	6.8143	15
16	1.1726	0.8528	17.2579	14.7179	0.0579	0.0679	107.273	7.2886	16
17	1.1843	0.8444	18.4304	15.5623	0.0543	0.0643	120.783	7.7613	17
18	1.1961	0.8360	19.6147	16.3983	0.0510	0.0610	134.996	8.2323	18
19	1.2081	0.8277	20.8109	17.2260	0.0481	0.0581	149.895	8.7017	19
20	1.2202	0.8195	22.0190	18.0456	0.0454	0.0554	165.466	9.1694	20
21	1.2324	0.8114	23.2392	18.8570	0.0430	0.0530	181.695	9.6354	21
22	1.2447	0.8034	24.4716	19.6604	0.0409	0.0509	198.566	10.0998	22
23	1.2572	0.7954	25.7163	20.4558	0.0389	0.0489	216.066	10.5626	23
24	1.2697	0.7876	26.9734	21.2434	0.0371	0.0471	234.180	11.0237	24
25	1.2824	0.7798	28.2432	22.0232	0.0354	0.0454	252.895	11.4831	25
30	1.3478	0.7419	34.7849	25.8077	0.0287	0.0387	355.002	13.7557	30
36	1.4308	0.6989	43.0769	30.1075	0.0232	0.0332	494.621	16.4285	36
40	1.4889	0.6717	48.8863	32.8346	0.0205	0.0305	596.856	18.1776	40
48	1.6122	0.6203	61.2226	37.9740	0.0163	0.0263	820.146	21.5976	48
60	1.8167	0.5504	81.6697	44.9550	0.0122	0.0222	1192.806	26.5333	60
72	2.0471	0.4885	104.7099	51.1504	0.0096	0.0196	1597.867	31.2386	72
84	2.3067	0.4335	130.6723	56.6485	0.0077	0.0177	2023.315	35.7170	84
100	2.7048	0.3697	170.4814	63.0289	0.0059	0.0159	2605.776	41.3426	100
∞				100.0000		0.0100			∞

TABLE C-5 Discrete Compounding; $i = 2\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.0200	0.9804	1.0000	0.9804	1.0000	1.0200	0.000	0.0000	1
2	1.0404	0.9612	2.0200	1.9416	0.4950	0.5150	0.961	0.4950	2
3	1.0612	0.9423	3.0604	2.8839	0.3268	0.3468	2.846	0.9868	3
4	1.0824	0.9238	4.1216	3.8077	0.2426	0.2626	5.617	1.4752	4
5	1.1041	0.9057	5.2040	4.7135	0.1922	0.2122	9.240	1.9604	5
6	1.1262	0.8880	6.3081	5.6014	0.1585	0.1785	13.680	2.4423	6
7	1.1487	0.8706	7.4343	6.4720	0.1345	0.1545	18.904	2.9208	7
8	1.1717	0.8535	8.5830	7.3255	0.1165	0.1365	24.878	3.3961	8
9	1.1951	0.8368	9.7546	8.1622	0.1025	0.1225	31.572	3.8681	9
10	1.2190	0.8203	10.9497	8.9826	0.0913	0.1113	38.955	4.3367	10
11	1.2434	0.8043	12.1687	9.7868	0.0822	0.1022	46.998	4.8021	11
12	1.2682	0.7885	13.4121	10.5753	0.0746	0.0946	55.671	5.2642	12
13	1.2936	0.7730	14.6803	11.3484	0.0681	0.0881	64.948	5.7231	13
14	1.3195	0.7579	15.9739	12.1062	0.0626	0.0826	74.800	6.1786	14
15	1.3459	0.7430	17.2934	12.8493	0.0578	0.0778	85.202	6.6309	15
16	1.3728	0.7284	18.6393	13.5777	0.0537	0.0737	96.129	7.0799	16
17	1.4002	0.7142	20.0121	14.2919	0.0500	0.0700	107.555	7.5256	17
18	1.4282	0.7002	21.4123	14.9920	0.0467	0.0667	119.458	7.9681	18
19	1.4568	0.6864	22.8406	15.6785	0.0438	0.0638	131.814	8.4073	19
20	1.4859	0.6730	24.2974	16.3514	0.0412	0.0612	144.600	8.8433	20
21	1.5157	0.6598	25.7833	17.0112	0.0388	0.0588	157.796	9.2760	21
22	1.5460	0.6468	27.2990	17.6580	0.0366	0.0566	171.380	9.7055	22
23	1.5769	0.6342	28.8450	18.2922	0.0347	0.0547	185.331	10.1317	23
24	1.6084	0.6217	30.4219	18.9139	0.0329	0.0529	199.631	10.5547	24
25	1.6406	0.6095	32.0303	19.5235	0.0312	0.0512	214.259	10.9745	25
30	1.8114	0.5521	40.5681	22.3965	0.0246	0.0446	291.716	13.0251	30
36	2.0399	0.4902	51.9944	25.4888	0.0192	0.0392	392.041	15.3809	36
40	2.2080	0.4529	60.4020	27.3555	0.0166	0.0366	461.993	16.8885	40
48	2.5871	0.3865	79.3535	30.6731	0.0126	0.0326	605.966	19.7556	48
60	3.2810	0.3048	114.0515	34.7609	0.0088	0.0288	823.698	23.6961	60
72	4.1611	0.2403	158.0570	37.9841	0.0063	0.0263	1034.056	27.2234	72
84	5.2773	0.1895	213.8666	40.5255	0.0047	0.0247	1230.419	30.3616	84
100	7.2446	0.1380	312.2323	43.0984	0.0032	0.0232	1464.753	33.9863	100
∞				50.0000		0.0200			∞

TABLE C-6 Discrete Compounding; $i = 3\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.0300	0.9709	1.0000	0.9709	1.0000	1.0300	0.000	0.0000	1
2	1.0609	0.9426	2.0300	1.9135	0.4926	0.5226	0.943	0.4926	2
3	1.0927	0.9151	3.0909	2.8286	0.3235	0.3535	2.773	0.9803	3
4	1.1255	0.8885	4.1836	3.7171	0.2390	0.2690	5.438	1.4631	4
5	1.1593	0.8626	5.3091	4.5797	0.1884	0.2184	8.889	1.9409	5
6	1.1941	0.8375	6.4684	5.4172	0.1546	0.1846	13.076	2.4138	6
7	1.2299	0.8131	7.6625	6.2303	0.1305	0.1605	17.955	2.8819	7
8	1.2668	0.7894	8.8923	7.0197	0.1125	0.1425	23.481	3.3450	8
9	1.3048	0.7664	10.1591	7.7861	0.0984	0.1284	29.612	3.8032	9
10	1.3439	0.7441	11.4639	8.5302	0.0872	0.1172	36.309	4.2565	10
11	1.3842	0.7224	12.8078	9.2526	0.0781	0.1081	43.533	4.7049	11
12	1.4258	0.7014	14.1920	9.9540	0.0705	0.1005	51.248	5.1485	12
13	1.4685	0.6810	15.6178	10.6350	0.0640	0.0940	59.420	5.5872	13
14	1.5126	0.6611	17.0863	11.2961	0.0585	0.0885	68.014	6.0210	14
15	1.5580	0.6419	18.5989	11.9379	0.0538	0.0838	77.000	6.4500	15
16	1.6047	0.6232	20.1569	12.5611	0.0496	0.0796	86.348	6.8742	16
17	1.6528	0.6050	21.7616	13.1661	0.0460	0.0760	96.028	7.2936	17
18	1.7024	0.5874	23.4144	13.7535	0.0427	0.0727	106.014	7.7081	18
19	1.7535	0.5703	25.1169	14.3238	0.0398	0.0698	116.279	8.1179	19
20	1.8061	0.5537	26.8704	14.8775	0.0372	0.0672	126.799	8.5229	20
21	1.8603	0.5375	28.6765	15.4150	0.0349	0.0649	137.550	8.9231	21
22	1.9161	0.5219	30.5368	15.9369	0.0327	0.0627	148.509	7.3186	22
23	1.9736	0.5067	32.4529	16.4436	0.0308	0.0608	159.657	9.7093	23
24	2.0328	0.4919	34.4265	16.9355	0.0290	0.0590	170.971	10.0954	24
25	2.0938	0.4776	36.4593	17.4131	0.0274	0.0574	182.434	10.4768	25
30	2.4273	0.4120	47.5754	19.6004	0.0210	0.0510	241.361	12.3141	30
35	2.8139	0.3554	60.4621	21.4872	0.0165	0.0465	301.627	14.0375	35
40	3.2620	0.3066	75.4012	23.1148	0.0133	0.0433	361.750	15.6502	40
45	3.7816	0.2644	92.7199	24.5187	0.0108	0.0408	420.633	17.1556	45
50	4.3839	0.2281	112.7969	25.7298	0.0089	0.0389	477.480	18.5575	50
60	5.8916	0.1697	163.0534	27.6756	0.0061	0.0361	583.053	21.0674	60
80	10.6409	0.0940	321.3630	30.2008	0.0031	0.0331	756.087	25.0353	80
100	19.2186	0.0520	607.2877	31.5989	0.0016	0.0316	879.854	27.8444	100
∞				33.3333		0.0300			∞

TABLE C-7 Discrete Compounding; $i = 4\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.0400	0.9615	1.0000	0.9615	1.0000	1.0400	0.000	0.0000	1
2	1.0816	0.9246	2.0400	1.8861	0.4902	0.5302	0.925	0.4902	2
3	1.1249	0.8890	3.1216	2.7751	0.3203	0.3603	2.703	0.9739	3
4	1.1699	0.8548	4.2465	3.6299	0.2355	0.2755	5.267	1.4510	4
5	1.2167	0.8219	5.4163	4.4518	0.1846	0.2246	8.555	1.9216	5
6	1.2653	0.7903	6.6330	5.2421	0.1508	0.1908	12.506	2.3857	6
7	1.3159	0.7599	7.8983	6.0021	0.1266	0.1666	17.066	2.8433	7
8	1.3686	0.7307	9.2142	6.7327	0.1085	0.1485	22.181	3.2944	8
9	1.4233	0.7026	10.5828	7.4353	0.0945	0.1345	27.801	3.7391	9
10	1.4802	0.6756	12.0061	8.1109	0.0833	0.1233	33.881	4.1773	10
11	1.5395	0.6496	13.4864	8.7605	0.0741	0.1141	40.377	4.6090	11
12	1.6010	0.6246	15.0258	9.3851	0.0666	0.1066	47.248	5.0343	12
13	1.6651	0.6006	16.6268	9.9856	0.0601	0.1001	54.455	5.4533	13
14	1.7317	0.5775	18.2919	10.5631	0.0547	0.0947	61.962	5.8659	14
15	1.8009	0.5553	20.0236	11.1184	0.0499	0.0899	69.736	6.2721	15
16	1.8730	0.5339	21.8245	11.6523	0.0458	0.0858	77.744	6.6720	16
17	1.9479	0.5134	23.6975	12.1657	0.0422	0.0822	85.958	7.0656	17
18	2.0258	0.4936	25.6454	12.6593	0.0390	0.0790	94.350	7.4530	18
19	2.1068	0.4746	27.6712	13.1339	0.0361	0.0761	102.893	7.8342	19
20	2.1911	0.4564	29.7781	13.5903	0.0336	0.0736	111.565	8.2091	20
21	2.2788	0.4388	31.9692	14.0292	0.0313	0.0713	120.341	8.5779	21
22	2.3699	0.4220	34.2480	14.4511	0.0292	0.0692	129.202	8.9407	22
23	2.4647	0.4057	36.6179	14.8568	0.0273	0.0673	138.128	9.2973	23
24	2.5633	0.3901	39.0826	15.2470	0.0256	0.0656	147.101	9.6479	24
25	2.6658	0.3751	41.6459	15.6221	0.0240	0.0640	156.104	9.9925	25
30	3.2434	0.3083	56.0849	17.2920	0.0178	0.0578	201.062	11.6274	30
35	3.9461	0.2534	73.6522	18.6646	0.0136	0.0536	244.877	13.1198	35
40	4.8010	0.2083	95.0255	19.7928	0.0105	0.0505	286.530	14.4765	40
45	5.8412	0.1712	121.0294	20.7200	0.0083	0.0483	325.403	15.7047	45
50	7.1067	0.1407	152.6671	21.4822	0.0066	0.0466	361.164	16.8122	50
60	10.5196	0.0951	237.9907	22.6235	0.0042	0.0442	422.997	18.6972	60
80	23.0498	0.0434	551.2450	23.9154	0.0018	0.0418	511.116	21.3718	80
100	50.5049	0.0198	1237.6237	24.5050	0.0008	0.0408	563.125	22.9800	100
∞				25.0000		0.0400			∞

TABLE C-8 Discrete Compounding; $i = 5\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.0500	0.9524	1.0000	0.9524	1.0000	1.0500	0.000	0.0000	1
2	1.1025	0.9070	2.0500	1.8594	0.4878	0.5378	0.907	0.4878	2
3	1.1576	0.8638	3.1525	2.7232	0.3172	0.3672	2.635	0.9675	3
4	1.2155	0.8227	4.3101	3.5460	0.2320	0.2820	5.103	1.4391	4
5	1.2763	0.7835	5.5256	4.3295	0.1810	0.2310	8.237	1.9025	5
6	1.3401	0.7462	6.8019	5.0757	0.1470	0.1970	11.968	2.3579	6
7	1.4071	0.7107	8.1420	5.7864	0.1228	0.1728	16.232	2.8052	7
8	1.4775	0.6768	9.5491	6.4632	0.1047	0.1547	20.970	3.2445	8
9	1.5513	0.6446	11.0266	7.1078	0.0907	0.1407	26.127	3.6758	9
10	1.6289	0.6139	12.5779	7.7217	0.0795	0.1295	31.652	4.0991	10
11	1.7103	0.5847	14.2068	8.3064	0.0704	0.1204	37.499	4.5144	11
12	1.7959	0.5568	15.9171	8.8633	0.0628	0.1128	43.624	4.9219	12
13	1.8856	0.5303	17.7130	9.3936	0.0565	0.1065	49.988	5.3215	13
14	1.9799	0.5051	19.5986	9.8986	0.0510	0.1010	56.554	5.7133	14
15	2.0789	0.4810	21.5786	10.3797	0.0463	0.0963	63.288	6.0973	15
16	2.1829	0.4581	23.6575	10.8378	0.0423	0.0923	70.160	6.4736	16
17	2.2920	0.4363	25.8404	11.2741	0.0387	0.0887	77.141	6.8423	17
18	2.4066	0.4155	28.1324	11.6896	0.0355	0.0855	84.204	7.2034	18
19	2.5270	0.3957	30.5390	12.0853	0.0327	0.0827	91.328	7.5569	19
20	2.6533	0.3769	33.0660	12.4622	0.0302	0.0802	98.488	7.9030	20
21	2.7860	0.3589	35.7193	12.8212	0.0280	0.0780	105.667	8.2416	21
22	2.9253	0.3418	38.5052	13.1630	0.0260	0.0760	112.846	8.5730	22
23	3.0715	0.3256	41.4305	13.4886	0.0241	0.0741	120.009	8.8971	23
24	3.2251	0.3101	44.5020	13.7986	0.0225	0.0725	127.140	9.2140	24
25	3.3864	0.2953	47.7271	14.0939	0.0210	0.0710	134.228	9.5238	25
30	4.3219	0.2314	66.4388	15.3725	0.0151	0.0651	168.623	10.9691	30
35	5.5160	0.1813	90.3203	16.3742	0.0111	0.0611	200.581	12.2498	35
40	7.0400	0.1420	120.7998	17.1591	0.0083	0.0583	229.545	13.3775	40
45	8.9850	0.1113	159.7002	17.7741	0.0063	0.0563	255.315	14.3644	45
50	11.4674	0.0872	209.3480	18.2559	0.0048	0.0548	277.915	15.2233	50
60	18.6792	0.0535	353.5837	18.9293	0.0028	0.0528	314.343	16.6062	60
80	49.5614	0.0202	971.2288	19.5965	0.0010	0.0510	359.646	18.3526	80
100	131.5013	0.0076	2610.0252	19.8479	0.0004	0.0504	381.749	19.2337	100
∞				20.0000		0.0500			∞

TABLE C-9 Discrete Compounding; $i = 6\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.0600	0.9434	1.0000	0.9434	1.0000	1.0600	0.000	0.0000	1
2	1.1236	0.8900	2.0600	1.8334	0.4854	0.5454	0.890	0.4854	2
3	1.1910	0.8396	3.1836	2.6730	0.3141	0.3741	2.569	0.9612	3
4	1.2625	0.7921	4.3746	3.4651	0.2286	0.2886	4.946	1.4272	4
5	1.3382	0.7473	5.6371	4.2124	0.1774	0.2374	7.935	1.8836	5
6	1.4185	0.7050	6.9753	4.9173	0.1434	0.2034	11.459	2.3304	6
7	1.5036	0.6651	8.3938	5.5824	0.1191	0.1791	15.450	2.7676	7
8	1.5938	0.6274	9.8975	6.2098	0.1010	0.1610	19.842	3.1952	8
9	1.6895	0.5919	11.4913	6.8017	0.0870	0.1470	24.577	3.6133	9
10	1.7908	0.5584	13.1808	7.3601	0.0759	0.1359	29.602	4.0220	10
11	1.8983	0.5268	14.9716	7.8869	0.0668	0.1268	34.870	4.4213	11
12	2.0122	0.4970	16.8699	8.3838	0.0593	0.1193	40.337	4.8113	12
13	2.1329	0.4688	18.8821	8.8527	0.0530	0.1130	45.963	5.1920	13
14	2.2609	0.4423	21.0151	9.2950	0.0476	0.1076	51.713	5.5635	14
15	2.3966	0.4173	23.2760	9.7122	0.0430	0.1030	57.555	5.9260	15
16	2.5404	0.3936	25.6725	10.1059	0.0390	0.0990	63.459	6.2794	16
17	2.6928	0.3714	28.2129	10.4773	0.0354	0.0954	69.401	6.6240	17
18	2.8543	0.3503	30.9057	10.8276	0.0324	0.0924	75.357	6.9597	18
19	3.0256	0.3305	33.7600	11.1581	0.0296	0.0896	81.306	7.2867	19
20	3.2071	0.3118	36.7856	11.4699	0.0272	0.0872	87.230	7.6051	20
21	3.3996	0.2942	39.9927	11.7641	0.0250	0.0850	93.114	7.9151	21
22	3.6035	0.2775	43.3923	12.0416	0.0230	0.0830	98.941	8.2166	22
23	3.8197	0.2618	46.9958	12.3034	0.0213	0.0813	104.701	8.5099	23
24	4.0489	0.2470	50.8156	12.5504	0.0197	0.0797	110.381	8.7951	24
25	4.2919	0.2330	54.8645	12.7834	0.0182	0.0782	115.973	9.0722	25
30	5.7435	0.1741	79.0582	13.7648	0.0126	0.0726	142.359	10.3422	30
35	7.6861	0.1301	111.4348	14.4982	0.0090	0.0690	165.743	11.4319	35
40	10.2857	0.0972	154.7620	15.0463	0.0065	0.0665	185.957	12.3590	40
45	13.7646	0.0727	212.7435	15.4558	0.0047	0.0647	203.110	13.1413	45
50	18.4202	0.0543	290.3359	15.7619	0.0034	0.0634	217.457	13.7964	50
60	32.9877	0.0303	533.1282	16.1614	0.0019	0.0619	239.043	14.7909	60
80	105.7960	0.0095	1746.5999	16.5091	0.0006	0.0606	262.549	15.9033	80
100	339.3021	0.0029	5638.3681	16.6175	0.0002	0.0602	272.047	16.3711	100
∞				16.6667		0.0600			∞

TABLE C-10 Discrete Compounding; $i = 7\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.0700	0.9346	1.0000	0.9346	1.0000	1.0700	0.000	0.0000	1
2	1.1449	0.8734	2.0700	1.8080	0.4831	0.5531	0.873	0.4831	2
3	1.2250	0.8163	3.2149	2.6243	0.3111	0.3811	2.506	0.9549	3
4	1.3108	0.7629	4.4399	3.3872	0.2252	0.2952	4.795	1.4155	4
5	1.4026	0.7130	5.7507	4.1002	0.1739	0.2439	7.647	1.8650	5
6	1.5007	0.6663	7.1533	4.7665	0.1398	0.2098	10.978	2.3032	6
7	1.6058	0.6227	8.6540	5.3893	0.1156	0.1856	14.715	2.7304	7
8	1.7182	0.5820	10.2598	5.9713	0.0975	0.1675	18.789	3.1465	8
9	1.8385	0.5439	11.9780	6.5152	0.0835	0.1535	23.140	3.5517	9
10	1.9672	0.5083	13.8164	7.0236	0.0724	0.1424	27.716	3.9461	10
11	2.1049	0.4751	15.7836	7.4987	0.0634	0.1334	32.467	4.3296	11
12	2.2522	0.4440	17.8885	7.9427	0.0559	0.1259	37.351	4.7025	12
13	2.4098	0.4150	20.1406	8.3577	0.0497	0.1197	42.330	5.0648	13
14	2.5785	0.3878	22.5505	8.7455	0.0443	0.1143	47.372	5.4167	14
15	2.7590	0.3624	25.1290	9.1079	0.0398	0.1098	52.446	5.7583	15
16	2.9522	0.3387	27.8881	9.4466	0.0359	0.1059	57.527	6.0897	16
17	3.1588	0.3166	30.8402	9.7632	0.0324	0.1024	62.592	6.4110	17
18	3.3799	0.2959	33.9990	10.0591	0.0294	0.0994	67.622	6.7225	18
19	3.6165	0.2765	37.3790	10.3356	0.0268	0.0968	72.599	7.0242	19
20	3.8697	0.2584	40.9955	10.5940	0.0244	0.0944	77.509	7.3163	20
21	4.1406	0.2415	44.8652	10.8355	0.0223	0.0923	82.339	7.5990	21
22	4.4304	0.2257	49.0057	11.0612	0.0204	0.0904	87.079	7.8725	22
23	4.7405	0.2109	53.4361	11.2722	0.0187	0.0887	91.720	8.1369	23
24	5.0724	0.1971	58.1767	11.4693	0.0172	0.0872	96.255	8.3923	24
25	5.4274	0.1842	63.2490	11.6536	0.0158	0.0858	100.677	8.6391	25
30	7.6123	0.1314	94.4608	12.4090	0.0106	0.0806	120.972	9.7487	30
35	10.6766	0.0937	138.2369	12.9477	0.0072	0.0772	138.135	10.6687	35
40	14.9745	0.0668	199.6351	13.3317	0.0050	0.0750	152.293	11.4233	40
45	21.0023	0.0476	285.7495	13.6055	0.0035	0.0735	163.756	12.0360	45
50	29.4570	0.0339	406.5289	13.8007	0.0025	0.0725	172.905	12.5287	50
60	57.9464	0.0173	813.5204	14.0392	0.0012	0.0712	185.768	13.2321	60
80	224.2344	0.0045	3189.0627	14.2220	0.0003	0.0703	198.075	13.9273	80
100	867.7163	0.0012	12381.6618	14.2693	0.0001	0.0701	202.200	14.1703	100
∞				14.2857		0.0700			∞

TABLE C-11 Discrete Compounding; $i = 8\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.0800	0.9259	1.0000	0.9259	1.0000	1.0800	0.000	0.0000	1
2	1.1664	0.8573	2.0800	1.7833	0.4808	0.5608	0.857	0.4808	2
3	1.2597	0.7938	3.2464	2.5771	0.3080	0.3880	2.445	0.9487	3
4	1.3605	0.7350	4.5061	3.3121	0.2219	0.3019	4.650	1.4040	4
5	1.4693	0.6806	5.8666	3.9927	0.1705	0.2505	7.372	1.8465	5
6	1.5869	0.6302	7.3359	4.6229	0.1363	0.2163	10.523	2.2763	6
7	1.7138	0.5835	8.9228	5.2064	0.1121	0.1921	14.024	2.6937	7
8	1.8509	0.5403	10.6366	5.7466	0.0940	0.1740	17.806	3.0985	8
9	1.9990	0.5002	12.4876	6.2469	0.0801	0.1601	21.808	3.4910	9
10	2.1589	0.4632	14.4866	6.7101	0.0690	0.1490	25.977	3.8713	10
11	2.3316	0.4289	16.6455	7.1390	0.0601	0.1401	30.266	4.2395	11
12	2.5182	0.3971	18.9771	7.5361	0.0527	0.1327	34.634	4.5957	12
13	2.7196	0.3677	21.4953	7.9038	0.0465	0.1265	39.046	4.9402	13
14	2.9372	0.3405	24.2149	8.2442	0.0413	0.1213	43.472	5.2731	14
15	3.1722	0.3152	27.1521	8.5595	0.0368	0.1168	47.886	5.5945	15
16	3.4259	0.2919	30.3243	8.8514	0.0330	0.1130	52.264	5.9046	16
17	3.7000	0.2703	33.7502	9.1216	0.0296	0.1096	56.588	6.2037	17
18	3.9960	0.2502	37.4502	9.3719	0.0267	0.1067	60.843	6.4920	18
19	4.3157	0.2317	41.4463	9.6036	0.0241	0.1041	65.013	6.7697	19
20	4.6610	0.2145	45.7620	9.8181	0.0219	0.1019	69.090	7.0369	20
21	5.0338	0.1987	50.4229	10.0168	0.0198	0.0998	73.063	7.2940	21
22	5.4365	0.1839	55.4568	10.2007	0.0180	0.0980	76.926	7.5412	22
23	5.8715	0.1703	60.8933	10.3711	0.0164	0.0964	80.673	7.7786	23
24	6.3412	0.1577	66.7648	10.5288	0.0150	0.0950	84.300	8.0066	24
25	6.8485	0.1460	73.1059	10.6748	0.0137	0.0937	87.804	8.2254	25
30	10.0627	0.0994	113.2832	11.2578	0.0088	0.0888	103.456	9.1897	30
35	14.7853	0.0676	172.3168	11.6546	0.0058	0.0858	116.092	9.9611	35
40	21.7245	0.0460	259.0565	11.9246	0.0039	0.0839	126.042	10.5699	40
45	31.9204	0.0313	386.5056	12.1084	0.0026	0.0826	133.733	11.0447	45
50	46.9016	0.0213	573.7702	12.2335	0.0017	0.0817	139.593	11.4107	50
60	101.2571	0.0099	1253.2133	12.3766	0.0008	0.0808	147.300	11.9015	60
80	471.9548	0.0021	5886.9354	12.4735	0.0002	0.0802	153.800	12.3301	80
100	2199.7613	0.0005	27484.5157	12.4943	[a]	0.0800	155.611	12.4545	100
∞				12.5000		0.0800			∞

[a] Less than 0.0001.

TABLE C-12 Discrete Compounding; $i = 9\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.0900	0.9174	1.0000	0.9174	1.0000	1.0900	0.000	0.0000	1
2	1.1881	0.8417	2.0900	1.7591	0.4785	0.5685	0.842	0.4785	2
3	1.2950	0.7722	3.2781	2.5313	0.3051	0.3951	2.386	0.9426	3
4	1.4116	0.7084	4.5731	3.2397	0.2187	0.3087	4.511	1.3925	4
5	1.5386	0.6499	5.9847	3.8897	0.1671	0.2571	7.111	1.8282	5
6	1.6771	0.5963	7.5233	4.4859	0.1329	0.2229	10.092	2.2498	6
7	1.8280	0.5470	9.2004	5.0330	0.1087	0.1987	13.375	2.6574	7
8	1.9926	0.5019	11.0285	5.5348	0.0907	0.1807	16.888	3.0512	8
9	2.1719	0.4604	13.0210	5.9952	0.0768	0.1668	20.571	3.4312	9
10	2.3674	0.4224	15.1929	6.4177	0.0658	0.1558	24.373	3.7978	10
11	2.5804	0.3875	17.5603	6.8052	0.0569	0.1469	28.248	4.1510	11
12	2.8127	0.3555	20.1407	7.1607	0.0497	0.1397	32.159	4.4910	12
13	3.0658	0.3262	22.9534	7.4869	0.0436	0.1336	36.073	4.8182	13
14	3.3417	0.2992	26.0192	7.7862	0.0384	0.1284	39.963	5.1326	14
15	3.6425	0.2745	29.3609	8.0607	0.0341	0.1241	43.807	5.4346	15
16	3.9703	0.2519	33.0034	8.3126	0.0303	0.1203	47.585	5.7245	16
17	4.3276	0.2311	36.9737	8.5436	0.0270	0.1170	51.282	6.0024	17
18	4.7171	0.2120	41.3013	8.7556	0.0242	0.1142	54.886	6.2687	18
19	5.1417	0.1945	46.0185	8.9501	0.0217	0.1117	58.387	6.5236	19
20	5.6044	0.1784	51.1601	9.1285	0.0195	0.1095	61.777	6.7674	20
21	6.1088	0.1637	56.7645	9.2922	0.0176	0.1076	65.051	7.0006	21
22	6.6586	0.1502	62.8733	9.4424	0.0159	0.1059	68.205	7.2232	22
23	7.2579	0.1378	69.5319	9.5802	0.0144	0.1044	71.236	7.4357	23
24	7.9111	0.1264	76.7898	9.7066	0.0130	0.1030	74.143	7.6384	24
25	8.6231	0.1160	84.7009	9.8226	0.0118	0.1018	76.927	7.8316	25
30	13.2677	0.0754	136.3075	10.2737	0.0073	0.0973	89.028	8.6657	30
35	20.4140	0.0490	215.7108	10.5668	0.0046	0.0946	98.359	9.3083	35
40	31.4094	0.0318	337.8824	10.7574	0.0030	0.0930	105.376	9.7957	40
45	48.3273	0.0207	525.8587	10.8812	0.0019	0.0919	110.556	10.1603	45
50	74.3575	0.0134	815.0836	10.9617	0.0012	0.0912	114.325	10.4295	50
60	176.0313	0.0057	1944.7921	11.0480	0.0005	0.0905	118.968	10.7683	60
80	986.5517	0.0010	10950.5741	11.0998	0.0001	0.0901	122.431	11.0299	80
100	5529.0408	0.0002	61422.6755	11.1091	[a]	0.0900	123.234	11.0930	100
∞				11.1111		0.0900			∞

[a] Less than 0.0001.

TABLE C-13 Discrete Compounding; $i = 10\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.1000	0.9091	1.0000	0.9091	1.0000	1.1000	0.000	0.0000	1
2	1.2100	0.8264	2.1000	1.7355	0.4762	0.5762	0.826	0.4762	2
3	1.3310	0.7513	3.3100	2.4869	0.3021	0.4021	2.329	0.9366	3
4	1.4641	0.6830	4.6410	3.1699	0.2155	0.3155	4.378	1.3812	4
5	1.6105	0.6209	6.1051	3.7908	0.1638	0.2638	6.862	1.8101	5
6	1.7716	0.5645	7.7156	4.3553	0.1296	0.2296	9.684	2.2236	6
7	1.9487	0.5132	9.4872	4.8684	0.1054	0.2054	12.763	2.6216	7
8	2.1436	0.4665	11.4359	5.3349	0.0874	0.1874	16.029	3.0045	8
9	2.3579	0.4241	13.5795	5.7590	0.0736	0.1736	19.422	3.3724	9
10	2.5937	0.3855	15.9374	6.1446	0.0627	0.1627	22.891	3.7255	10
11	2.8531	0.3505	18.5312	6.4951	0.0540	0.1540	26.396	4.0641	11
12	3.1384	0.3186	21.3843	6.8137	0.0468	0.1468	29.901	4.3884	12
13	3.4523	0.2897	24.5227	7.1034	0.0408	0.1408	33.377	4.6988	13
14	3.7975	0.2633	27.9750	7.3667	0.0357	0.1357	36.801	4.9955	14
15	4.1772	0.2394	31.7725	7.6061	0.0315	0.1315	40.152	5.2789	15
16	4.5950	0.2176	35.9497	7.8237	0.0278	0.1278	43.416	5.5493	16
17	5.0545	0.1978	40.5447	8.0216	0.0247	0.1247	46.582	5.8071	17
18	5.5599	0.1799	45.5992	8.2014	0.0219	0.1219	49.640	6.0526	18
19	6.1159	0.1635	51.1591	8.3649	0.0195	0.1195	52.583	6.2861	19
20	6.7275	0.1486	57.2750	8.5136	0.0175	0.1175	55.407	6.5081	20
21	7.4002	0.1351	64.0025	8.6487	0.0156	0.1156	58.110	6.7189	21
22	8.1403	0.1228	71.4027	8.7715	0.0140	0.1140	60.689	6.9189	22
23	8.9543	0.1117	79.5430	8.8832	0.0126	0.1126	63.146	7.1085	23
24	9.8497	0.1015	88.4973	8.9847	0.0113	0.1113	65.481	7.2881	24
25	10.8347	0.0923	98.3471	9.0770	0.0102	0.1102	67.696	7.4580	25
30	17.4494	0.0573	164.4940	9.4269	0.0061	0.1061	77.077	8.1762	30
35	28.1024	0.0356	271.0244	9.6442	0.0037	0.1037	83.987	8.7086	35
40	45.2593	0.0221	442.5926	9.7791	0.0023	0.1023	88.953	9.0962	40
45	72.8905	0.0137	718.9048	9.8628	0.0014	0.1014	92.454	9.3740	45
50	117.3909	0.0085	1163.9085	9.9148	0.0009	0.1009	94.889	9.5704	50
60	304.4816	0.0033	3034.8164	9.9672	0.0003	0.1003	97.701	9.8023	60
80	2048.4002	0.0005	20474.0021	9.9951	[a]	0.1000	99.561	9.9609	80
100	13780.6123	0.0001	137796.1234	9.9993	[a]	0.1000	99.920	9.9927	100
∞				10.0000		0.1000			∞

[a] Less than 0.0001.

TABLE C-14 Discrete Compounding; $i = 12\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.1200	0.8929	1.0000	0.8929	1.0000	1.1200	0.000	0.0000	1
2	1.2544	0.7972	2.1200	1.6901	0.4717	0.5917	0.797	0.4717	2
3	1.4049	0.7118	3.3744	2.4018	0.2963	0.4163	2.221	0.9246	3
4	1.5735	0.6355	4.7793	3.0373	0.2092	0.3292	4.127	1.3589	4
5	1.7623	0.5674	6.3528	3.6048	0.1574	0.2774	6.397	1.7746	5
6	1.9738	0.5066	8.1152	4.1114	0.1232	0.2432	8.930	2.1720	6
7	2.2107	0.4523	10.0890	4.5638	0.0991	0.2191	11.644	2.5515	7
8	2.4760	0.4039	12.2997	4.9676	0.0813	0.2013	14.471	2.9131	8
9	2.7731	0.3606	14.7757	5.3282	0.0677	0.1877	17.356	3.2574	9
10	3.1058	0.3220	17.5487	5.6502	0.0570	0.1770	20.254	3.5847	10
11	3.4785	0.2875	20.6546	5.9377	0.0484	0.1684	23.129	3.8953	11
12	3.8960	0.2567	24.1331	6.1944	0.0414	0.1614	25.952	4.1897	12
13	4.3635	0.2292	28.0291	6.4235	0.0357	0.1557	28.702	4.4683	13
14	4.8871	0.2046	32.3926	6.6282	0.0309	0.1509	31.362	4.7317	14
15	5.4736	0.1827	37.2797	6.8109	0.0268	0.1468	33.920	4.9803	15
16	6.1304	0.1631	42.7533	6.9740	0.0234	0.1434	36.367	5.2147	16
17	6.8660	0.1456	48.8837	7.1196	0.0205	0.1405	38.697	5.4353	17
18	7.6900	0.1300	55.7497	7.2497	0.0179	0.1379	40.908	5.6427	18
19	8.6128	0.1161	63.4397	7.3658	0.0158	0.1358	42.998	5.8375	19
20	9.6463	0.1037	72.0524	7.4694	0.0139	0.1339	44.968	6.0202	20
21	10.8038	0.0926	81.6987	7.5620	0.0122	0.1322	46.819	6.1913	21
22	12.1003	0.0826	92.5026	7.6446	0.0108	0.1308	48.554	6.3514	22
23	13.5523	0.0738	104.6029	7.7184	0.0096	0.1296	50.178	6.5010	23
24	15.1786	0.0659	118.1552	7.7843	0.0085	0.1285	51.693	6.6406	24
25	17.0001	0.0588	133.3339	7.8431	0.0075	0.1275	53.105	6.7708	25
30	29.9599	0.0334	241.3327	8.0552	0.0041	0.1241	58.782	7.2974	30
35	52.7996	0.0189	431.6635	8.1755	0.0023	0.1223	62.605	7.6577	35
40	93.0510	0.0107	767.0914	8.2438	0.0013	0.1213	65.116	7.8988	40
45	163.9876	0.0061	1358.2300	8.2825	0.0007	0.1207	66.734	8.0572	45
50	289.0022	0.0035	2400.0182	8.3045	0.0004	0.1204	67.762	8.1597	50
60	897.5969	0.0011	7471.6411	8.3240	0.0001	0.1201	68.810	8.2664	60
80	8658.4831	0.0001	72145.6925	8.3324	[a]	0.1200	69.359	8.3241	80
100	83522.2657	[a]	696010.5477	8.3332	[a]	0.1200	69.434	8.3321	100
∞				8.3333		0.1200			∞

[a] Less than 0.0001.

TABLE C-15 Discrete Compounding; $i = 15\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.1500	0.8696	1.0000	0.8696	1.0000	1.1500	0.000	0.0000	1
2	1.3225	0.7561	2.1500	1.6257	0.4651	0.6151	0.756	0.4651	2
3	1.5209	0.6575	3.4725	2.2832	0.2880	0.4380	2.071	0.9071	3
4	1.7490	0.5718	4.9934	2.8550	0.2003	0.3503	3.786	1.3263	4
5	2.0114	0.4972	6.7424	3.3522	0.1483	0.2983	5.775	1.7228	5
6	2.3131	0.4323	8.7537	3.7845	0.1142	0.2642	7.937	2.0972	6
7	2.6600	0.3759	11.0668	4.1604	0.0904	0.2404	10.192	2.4498	7
8	3.0590	0.3269	13.7268	4.4873	0.0729	0.2229	12.481	2.7813	8
9	3.5179	0.2843	16.7858	4.7716	0.0596	0.2096	14.755	3.0922	9
10	4.0456	0.2472	20.3037	5.0188	0.0493	0.1993	16.980	3.3832	10
11	4.6524	0.2149	24.3493	5.2337	0.0411	0.1911	19.129	3.6549	11
12	5.3503	0.1869	29.0017	5.4206	0.0345	0.1845	21.185	3.9082	12
13	6.1528	0.1625	34.3519	5.5831	0.0291	0.1791	23.135	4.1438	13
14	7.0757	0.1413	40.5047	5.7245	0.0247	0.1747	24.973	4.3624	14
15	8.1371	0.1229	47.5804	5.8474	0.0210	0.1710	26.693	4.5650	15
16	9.3576	0.1069	55.7175	5.9542	0.0179	0.1679	28.296	4.7522	16
17	10.7613	0.0929	65.0751	6.0472	0.0154	0.1654	29.783	4.9251	17
18	12.3755	0.0808	75.8364	6.1280	0.0132	0.1632	31.157	5.0843	18
19	14.2318	0.0703	88.2118	6.1982	0.0113	0.1613	32.421	5.2307	19
20	16.3665	0.0611	102.4436	6.2593	0.0098	0.1598	33.582	5.3651	20
21	18.8215	0.0531	118.8101	6.3125	0.0084	0.1584	34.645	5.4883	21
22	21.6447	0.0462	137.6316	6.3587	0.0073	0.1573	35.615	5.6010	22
23	24.8915	0.0402	159.2764	6.3988	0.0063	0.1563	36.499	5.7040	23
24	28.6252	0.0349	184.1678	6.4338	0.0054	0.1554	37.302	5.7979	24
25	32.9190	0.0304	212.7930	6.4641	0.0047	0.1547	38.031	5.8834	25
30	66.2118	0.0151	434.7451	6.5660	0.0023	0.1523	40.753	6.2066	30
35	133.1755	0.0075	881.1702	6.6166	0.0011	0.1511	42.359	6.4019	35
40	267.8635	0.0037	1779.0903	6.6418	0.0006	0.1506	43.283	6.5168	40
45	538.7693	0.0019	3585.1285	6.6543	0.0003	0.1503	43.805	6.5830	45
50	1083.6574	0.0009	7217.7163	6.6605	0.0001	0.1501	44.096	6.6205	50
60	4383.9987	0.0002	29219.9916	6.6651	[a]	0.1500	44.343	6.6530	60
80	71750.8794	[a]	478332.5293	6.6666	[a]	0.1500	44.436	6.6656	80
100	1174313.4507	[a]	7828749.6713	6.6667	[a]	0.1500	44.444	6.6666	100
∞				6.6667		0.1500			∞

[a] Less than 0.0001.

TABLE C-16 Discrete Compounding; $i = 18\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.1800	0.8475	1.0000	0.8475	1.0000	1.1800	0.000	0.0000	1
2	1.3924	0.7182	2.1800	1.5656	0.4587	0.6387	0.718	0.4587	2
3	1.6430	0.6086	3.5724	2.1743	0.2799	0.4599	1.935	0.8902	3
4	1.9388	0.5158	5.2154	2.6901	0.1917	0.3717	3.483	1.2947	4
5	2.2878	0.4371	7.1542	3.1272	0.1398	0.3198	5.231	1.6728	5
6	2.6996	0.3704	9.4420	3.4976	0.1059	0.2859	7.083	2.0252	6
7	3.1855	0.3139	12.1415	3.8115	0.0824	0.2624	8.967	2.3526	7
8	3.7589	0.2660	15.3270	4.0776	0.0652	0.2452	10.829	2.6558	8
9	4.4355	0.2255	19.0859	4.3030	0.0524	0.2324	12.633	2.9358	9
10	5.2338	0.1911	23.5213	4.4941	0.0425	0.2225	14.353	3.1936	10
11	6.1759	0.1619	28.7551	4.6560	0.0348	0.2148	15.972	3.4303	11
12	7.2876	0.1372	34.9311	4.7932	0.0286	0.2086	17.481	3.6470	12
13	8.5994	0.1163	42.2187	4.9095	0.0237	0.2037	18.877	3.8449	13
14	10.1472	0.0985	50.8180	5.0081	0.0197	0.1997	20.158	4.0250	14
15	11.9737	0.0835	60.9653	5.0916	0.0164	0.1964	21.327	4.1887	15
16	14.1290	0.0708	72.9390	5.1624	0.0137	0.1937	22.389	4.3369	16
17	16.6722	0.0600	87.0680	5.2223	0.0115	0.1915	23.348	4.4708	17
18	19.6733	0.0508	103.7403	5.2732	0.0096	0.1896	24.212	4.5916	18
19	23.2144	0.0431	123.4135	5.3162	0.0081	0.1881	24.988	4.7003	19
20	27.3930	0.0365	146.6280	5.3527	0.0068	0.1868	25.681	4.7978	20
21	32.3238	0.0309	174.0210	5.3837	0.0057	0.1857	26.300	4.8851	21
22	38.1421	0.0262	206.3448	5.4099	0.0048	0.1848	26.851	4.9632	22
23	45.0076	0.0222	244.4868	5.4321	0.0041	0.1841	27.339	5.0329	23
24	53.1090	0.0188	289.4945	5.4509	0.0035	0.1835	27.773	5.0950	24
25	62.6686	0.0160	342.6035	5.4669	0.0029	0.1829	28.156	5.1502	25
30	143.3706	0.0070	790.9480	5.5168	0.0013	0.1813	29.486	5.3448	30
35	327.9973	0.0030	1816.6516	5.5386	0.0006	0.1806	30.177	5.4485	35
40	750.3783	0.0013	4163.2130	5.5482	0.0002	0.1802	30.527	5.5022	40
45	1716.6839	0.0006	9531.5771	5.5523	0.0001	0.1801	30.701	5.5293	45
50	3927.3569	0.0003	21813.0937	5.5541	[a]	0.1800	30.786	5.5428	50
60	20555.1400	[a]	114189.6665	5.5553	[a]	0.1800	30.847	5.5526	60
80	563067.6604	[a]	3128148.1133	5.5555	[a]	0.1800	30.863	5.5554	80
∞				5.5556		0.1800			∞

[a] Less than 0.0001.

TABLE C-17 Discrete Compounding; $i = 20\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.2000	0.8333	1.0000	0.8333	1.0000	1.2000	0.000	0.0000	1
2	1.4400	0.6944	2.2000	1.5278	0.4545	0.6545	0.694	0.4545	2
3	1.7280	0.5787	3.6400	2.1065	0.2747	0.4747	1.852	0.8791	3
4	2.0736	0.4823	5.3680	2.5887	0.1863	0.3863	3.299	1.2742	4
5	2.4883	0.4019	7.4416	2.9906	0.1344	0.3344	4.906	1.6405	5
6	2.9860	0.3349	9.9299	3.3255	0.1007	0.3007	6.581	1.9788	6
7	3.5832	0.2791	12.9159	3.6046	0.0774	0.2774	8.255	2.2902	7
8	4.2998	0.2326	16.4991	3.8372	0.0606	0.2606	9.883	2.5756	8
9	5.1598	0.1938	20.7989	4.0310	0.0481	0.2481	11.434	2.8364	9
10	6.1917	0.1615	25.9587	4.1925	0.0385	0.2385	12.887	3.0739	10
11	7.4301	0.1346	32.1504	4.3271	0.0311	0.2311	14.233	3.2893	11
12	8.9161	0.1122	39.5805	4.4392	0.0253	0.2253	15.467	3.4841	12
13	10.6993	0.0935	48.4966	4.5327	0.0206	0.2206	16.588	3.6597	13
14	12.8392	0.0779	59.1959	4.6106	0.0169	0.2169	17.601	3.8175	14
15	15.4070	0.0649	72.0351	4.6755	0.0139	0.2139	18.510	3.9588	15
16	18.4884	0.0541	87.4421	4.7296	0.0114	0.2114	19.321	4.0851	16
17	22.1861	0.0451	105.9306	4.7746	0.0094	0.2094	20.042	4.1976	17
18	26.6233	0.0376	128.1167	4.8122	0.0078	0.2078	20.681	4.2975	18
19	31.9480	0.0313	154.7400	4.8435	0.0065	0.2065	21.244	4.3861	19
20	38.3376	0.0261	186.6880	4.8696	0.0054	0.2054	21.740	4.4643	20
21	46.0051	0.0217	225.0256	4.8913	0.0044	0.2044	22.174	4.5334	21
22	55.2061	0.0181	271.0307	4.9094	0.0037	0.2037	22.555	4.5941	22
23	66.2474	0.0151	326.2369	4.9245	0.0031	0.2031	22.887	4.6475	23
24	79.4968	0.0126	392.4842	4.9371	0.0025	0.2025	23.176	4.6943	24
25	95.3962	0.0105	471.9811	4.9476	0.0021	0.2021	23.428	4.7352	25
30	237.3763	0.0042	1181.8816	4.9789	0.0008	0.2008	24.263	4.8731	30
35	590.6682	0.0017	2948.3411	4.9915	0.0003	0.2003	24.661	4.9406	35
40	1469.7716	0.0007	7343.8578	4.9966	0.0001	0.2001	24.847	4.9728	40
45	3657.2620	0.0003	18281.3099	4.9986	0.0001	0.2001	24.932	4.9877	45
50	9100.4382	0.0001	45497.1908	4.9995	[a]	0.2000	24.970	4.9945	50
60	56347.5144	[a]	281732.5718	4.9999	[a]	0.2000	24.994	4.9989	60
80	2160228.4620	[a]	10801137.3101	5.0000	[a]	0.2000	25.000	5.0000	80
∞				5.0000		0.2000			∞

[a] Less than 0.0001.

TABLE C-18 Discrete Compounding; $i = 25\%$

	Single Payment		Uniform Series				Uniform Gradient		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Gradient Present Worth Factor	Gradient Uniform Series Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	To Find A Given F	To Find A Given P	To Find P Given G	To Find A Given G	
N	F/P	P/F	F/A	P/A	A/F	A/P	P/G	A/G	N
1	1.2500	0.8000	1.0000	0.8000	1.0000	1.2500	0.000	0.0000	1
2	1.5625	0.6400	2.2500	1.4400	0.4444	0.6944	0.640	0.4444	2
3	1.9531	0.5120	3.8125	1.9520	0.2623	0.5123	1.664	0.8525	3
4	2.4414	0.4096	5.7656	2.3616	0.1734	0.4234	2.893	1.2249	4
5	3.0518	0.3277	8.2070	2.6893	0.1218	0.3718	4.204	1.5631	5
6	3.8147	0.2621	11.2588	2.9514	0.0888	0.3388	5.514	1.8683	6
7	4.7684	0.2097	15.0735	3.1611	0.0663	0.3163	6.773	2.1424	7
8	5.9605	0.1678	19.8419	3.3289	0.0504	0.3004	7.947	2.3872	8
9	7.4506	0.1342	25.8023	3.4631	0.0388	0.2888	9.021	2.6048	9
10	9.3132	0.1074	33.2529	3.5705	0.0301	0.2801	9.987	2.7971	10
11	11.6415	0.0859	42.5661	3.6564	0.0235	0.2735	10.846	2.9663	11
12	14.5519	0.0687	54.2077	3.7251	0.0184	0.2684	11.602	3.1145	12
13	18.1899	0.0550	68.7596	3.7801	0.0145	0.2645	12.262	3.2437	13
14	22.7374	0.0440	86.9495	3.8241	0.0115	0.2615	12.833	3.3559	14
15	28.4217	0.0352	109.6868	3.8593	0.0091	0.2591	13.326	3.4530	15
16	35.5271	0.0281	138.1085	3.8874	0.0072	0.2572	13.748	3.5366	16
17	44.4089	0.0225	173.6357	3.9099	0.0058	0.2558	14.109	3.6084	17
18	55.5112	0.0180	218.0446	3.9279	0.0046	0.2546	14.415	3.6698	18
19	69.3889	0.0144	273.5558	3.9424	0.0037	0.2537	14.674	3.7222	19
20	86.7362	0.0115	342.9447	3.9539	0.0029	0.2529	14.893	3.7667	20
21	108.4202	0.0092	429.6809	3.9631	0.0023	0.2523	15.078	3.8045	21
22	135.5253	0.0074	538.1011	3.9705	0.0019	0.2519	15.233	3.8365	22
23	169.4066	0.0059	673.6264	3.9764	0.0015	0.2515	15.363	3.8634	23
24	211.7582	0.0047	843.0329	3.9811	0.0012	0.2512	15.471	3.8861	24
25	264.6978	0.0038	1054.7912	3.9849	0.0009	0.2509	15.562	3.9052	25
30	807.7936	0.0012	3227.1743	3.9950	0.0003	0.2503	15.832	3.9628	30
35	2465.1903	0.0004	9856.7613	3.9984	0.0001	0.2501	15.937	3.9858	35
40	7523.1638	0.0001	30088.6554	3.9995	[a]	0.2500	15.977	3.9947	40
45	22958.8740	[a]	91831.4962	3.9998	[a]	0.2500	15.992	3.9980	45
50	70064.9232	[a]	280255.6929	3.9999	[a]	0.2500	15.997	3.9993	50
60	652530.4468	[a]	2610117.7872	4.0000	[a]	0.2500	16.000	3.9999	60
∞				4.0000		0.2500			∞

[a] Less than 0.0001.

APPENDIX D

Interest and Annuity Tables for Continuous Compounding

For various values of r from 8% to 20%,

r = nominal interest rate per period, compounded continuously
N = number of compounding periods

$$(F/P, \underline{r}\%, N) = e^{rN}$$

$$(P/F, \underline{r}\%, N) = e^{-rN} = \frac{1}{e^{rN}}$$

$$(F/A, \underline{r}\%, N) = \frac{e^{rN} - 1}{e^{r} - 1}$$

$$(P/A, \underline{r}\%, N) = \frac{e^{rN} - 1}{e^{rN}\,(e^{r} - 1)}.$$

TABLE D-1 Continuous Compounding; $r = 8\%$

	Discrete Flows				
	Single Payment		Uniform Series		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	
N	To Find F Given P F/P	To Find P Given F P/F	To Find F Given A F/A	To Find P Given A P/A	N
1	1.0833	0.9231	1.0000	0.9231	1
2	1.1735	0.8521	2.0833	1.7753	2
3	1.2712	0.7866	3.2568	2.5619	3
4	1.3771	0.7261	4.5280	3.2880	4
5	1.4918	0.6703	5.9052	3.9584	5
6	1.6161	0.6188	7.3970	4.5771	6
7	1.7507	0.5712	9.0131	5.1483	7
8	1.8965	0.5273	10.7637	5.6756	8
9	2.0544	0.4868	12.6602	6.1624	9
10	2.2255	0.4493	14.7147	6.6117	10
11	2.4109	0.4148	16.9402	7.0265	11
12	2.6117	0.3829	19.3511	7.4094	12
13	2.8292	0.3535	21.9628	7.7629	13
14	3.0649	0.3263	24.7920	8.0891	14
15	3.3201	0.3012	27.8569	8.3903	15
16	3.5966	0.2780	31.1770	8.6684	16
17	3.8962	0.2567	34.7736	8.9250	17
18	4.2207	0.2369	38.6698	9.1620	18
19	4.5722	0.2187	42.8905	9.3807	19
20	4.9530	0.2019	47.4627	9.5826	20
21	5.3656	0.1864	52.4158	9.7689	21
22	5.8124	0.1720	57.7813	9.9410	22
23	6.2965	0.1588	63.5938	10.0998	23
24	6.8120	0.1466	69.8903	10.2464	24
25	7.3891	0.1353	76.7113	10.3817	25
26	8.0045	0.1249	84.1003	10.5067	26
27	8.6711	0.1153	92.1048	10.6220	27
28	9.3933	0.1065	100.776	10.7285	28
29	10.1757	0.0983	110.169	10.8267	29
30	11.0232	0.0907	120.345	10.9174	30
35	16.4446	0.0608	185.439	11.2765	35
40	24.5325	0.0408	282.547	11.5172	40
45	36.5982	0.0273	427.416	11.6786	45
50	54.5982	0.0183	643.535	11.7868	50
55	81.4509	0.0123	965.947	11.8593	55
60	121.510	0.0082	1446.93	11.9079	60
65	181.272	0.0055	2164.47	11.9404	65
70	270.426	0.0037	3234.91	11.9623	70
75	403.429	0.0025	4831.83	11.9769	75
80	601.845	0.0017	7214.15	11.9867	80
85	897.847	0.0011	10768.1	11.9933	85
90	1339.43	0.0007	16070.1	11.9977	90
95	1998.20	0.0005	23979.7	12.0007	95
100	2980.96	0.0003	35779.3	12.0026	100

TABLE D-2 Continuous Compounding; $r = 10\%$

	Discrete Flows				
	Single Payment		Uniform Series		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	
	To Find F Given P	To Find P Given F	To Find F Given A	To Find P Given A	
N	F/P	P/F	F/A	P/A	N
1	1.1052	0.9048	1.0000	0.9048	1
2	1.2214	0.8187	2.1052	1.7236	2
3	1.3499	0.7408	3.3266	2.4644	3
4	1.4918	0.6703	4.6764	3.1347	4
5	1.6487	0.6065	6.1683	3.7412	5
6	1.8221	0.5488	7.8170	4.2900	6
7	2.0138	0.4966	9.6391	4.7866	7
8	2.2255	0.4493	11.6528	5.2360	8
9	2.4596	0.4066	13.8784	5.6425	9
10	2.7183	0.3679	16.3380	6.0104	10
11	3.0042	0.3329	19.0563	6.3433	11
12	3.3201	0.3012	22.0604	6.6445	12
13	3.6693	0.2725	25.3806	6.9170	13
14	4.0552	0.2466	29.0499	7.1636	14
15	4.4817	0.2231	33.1051	7.3867	15
16	4.9530	0.2019	37.5867	7.5886	16
17	5.4739	0.1827	42.5398	7.7713	17
18	6.0496	0.1653	48.0137	7.9366	18
19	6.6859	0.1496	54.0634	8.0862	19
20	7.3891	0.1353	60.7493	8.2215	20
21	8.1662	0.1225	68.1383	8.3440	21
22	9.0250	0.1108	76.3045	8.4548	22
23	9.9742	0.1003	85.3295	8.5550	23
24	11.0232	0.0907	95.3037	8.6458	24
25	12.1825	0.0821	106.327	8.7278	25
26	13.4637	0.0743	118.509	8.8021	26
27	14.8797	0.0672	131.973	8.8693	27
28	16.4446	0.0608	146.853	8.9301	28
29	18.1741	0.0550	163.298	8.9852	29
30	20.0855	0.0498	181.472	9.0349	30
35	33.1155	0.0302	305.364	9.2212	35
40	54.5981	0.0183	509.629	9.3342	40
45	90.0171	0.0111	846.404	9.4027	45
50	148.413	0.0067	1401.65	9.4443	50
55	244.692	0.0041	2317.10	9.4695	55
60	403.429	0.0025	3826.43	9.4848	60
65	665.142	0.0015	6314.88	9.4940	65
70	1096.63	0.0009	10417.6	9.4997	70
75	1808.04	0.0006	17182.0	9.5031	75
80	2980.96	0.0003	28334.4	9.5051	80
85	4914.77	0.0002	46721.7	9.5064	85
90	8103.08	0.0001	77037.3	9.5072	90
95	13359.7	[a]	127019.0	9.5076	95
100	22026.5	[a]	209425.0	9.5079	100

[a] Less than 0.0001.

TABLE D-3 Continuous Compounding; $r = 20\%$

	Discrete Flows				
	Single Payment		Uniform Series		
	Compound Amount Factor	Present Worth Factor	Compound Amount Factor	Present Worth Factor	
N	To Find F Given P F/P	To Find P Given F P/F	To Find F Given A F/A	To Find P Given A P/A	N
1	1.2214	0.8187	1.0000	0.8187	1
2	1.4918	0.6703	2.2214	1.4891	2
3	1.8221	0.5488	3.7132	2.0379	3
4	2.2255	0.4493	5.5353	2.4872	4
5	2.7183	0.3679	7.7609	2.8551	5
6	3.3201	0.3012	10.4792	3.1563	6
7	4.0552	0.2466	13.7993	3.4029	7
8	4.9530	0.2019	17.8545	3.6048	8
9	6.0496	0.1653	22.8075	3.7701	9
10	7.3891	0.1353	28.8572	3.9054	10
11	9.0250	0.1108	36.2462	4.0162	11
12	11.0232	0.0907	45.2712	4.1069	12
13	13.4637	0.0743	56.2944	4.1812	13
14	16.4446	0.0608	69.7581	4.2420	14
15	20.0855	0.0498	86.2028	4.2918	15
16	24.5325	0.0408	106.288	4.3325	16
17	29.9641	0.0334	130.821	4.3659	17
18	36.5982	0.0273	160.785	4.3932	18
19	44.7012	0.0224	197.383	4.4156	19
20	54.5981	0.0183	242.084	4.4339	20
21	66.6863	0.0150	296.682	4.4489	21
22	81.4509	0.0123	363.369	4.4612	22
23	99.4843	0.0101	444.820	4.4713	23
24	121.510	0.0082	544.304	4.4795	24
25	148.413	0.0067	665.814	4.4862	25
26	181.272	0.0055	814.227	4.4917	26
27	221.406	0.0045	995.500	4.4963	27
28	270.426	0.0037	1216.91	4.5000	28
29	330.299	0.0030	1487.33	4.5030	29
30	403.429	0.0025	1817.63	4.5055	30
35	1096.63	0.0009	4948.60	4.5125	35
40	2980.96	0.0003	13459.4	4.5151	40
45	8103.08	0.0001	36594.3	4.5161	45
50	22026.5	[a]	99481.4	4.5165	50
55	59874.1	[a]	270426.0	4.5166	55
60	162755.0	[a]	735103.0	4.5166	60

[a] Less than 0.0001.