Interest and Annuity Tables for Discrete Compounding

For various values of i

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-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-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	
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	To Find A Given F A/F	To Find A Given P A/P	To Find P Given G P/G	To Find A Given 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-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	
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	To Find A Given F A/F	To Find A Given P A/P	To Find P Given G P/G	To Find A Given 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.