

17. Appendix

P e r i o d s	FUTURE VALUE OF \$1																
	RATE PER PERIOD																
	0.25%	0.50%	0.75%	1.00%	1.50%	2.00%	2.50%	3.00%	4.00%	5.00%	6.00%	7.00%	8.00%	9.00%	10.00%	11.00%	12.00%
1	1.00250	1.00500	1.00750	1.01000	1.01500	1.02000	1.02500	1.03000	1.04000	1.05000	1.06000	1.07000	1.08000	1.09000	1.10000	1.11000	1.12000
2	1.00501	1.01003	1.01506	1.02010	1.03023	1.04040	1.05063	1.06090	1.08160	1.10250	1.12360	1.14490	1.16640	1.18810	1.21000	1.23210	1.25440
3	1.00752	1.01508	1.02267	1.03030	1.04568	1.06121	1.07689	1.09273	1.12486	1.15763	1.19102	1.22504	1.25971	1.29503	1.33100	1.36763	1.40493
4	1.01004	1.02015	1.03034	1.04060	1.06136	1.08243	1.10381	1.12551	1.16986	1.21551	1.26248	1.31080	1.36049	1.41158	1.46410	1.51807	1.57352
5	1.01256	1.02525	1.03807	1.05101	1.07728	1.10408	1.13141	1.15927	1.21665	1.27628	1.33823	1.40255	1.46933	1.53862	1.61051	1.68506	1.76234
6	1.01509	1.03038	1.04585	1.06152	1.09344	1.12616	1.15969	1.19405	1.26532	1.34010	1.41852	1.50073	1.58687	1.67710	1.77156	1.87041	1.97382
7	1.01763	1.03553	1.05370	1.07214	1.10984	1.14869	1.18869	1.22987	1.31593	1.40710	1.50363	1.60578	1.71382	1.82804	1.94872	2.07616	2.21068
8	1.02018	1.04071	1.06160	1.08286	1.12649	1.17166	1.21840	1.26677	1.36857	1.47746	1.59385	1.71819	1.85093	1.99256	2.14359	2.30454	2.47596
9	1.02273	1.04591	1.06956	1.09369	1.14339	1.19509	1.24886	1.30477	1.42331	1.55133	1.68948	1.83846	1.99900	2.17189	2.35795	2.55804	2.77308
10	1.02528	1.05114	1.07758	1.10462	1.16054	1.21899	1.28008	1.34392	1.48024	1.62889	1.79085	1.96715	2.15892	2.36736	2.59374	2.83942	3.10585
11	1.02785	1.05640	1.08566	1.11567	1.17795	1.24337	1.31209	1.38423	1.53945	1.71034	1.89830	2.10485	2.33164	2.58043	2.85312	3.15176	3.47855
12	1.03042	1.06168	1.09381	1.12683	1.19562	1.26824	1.34489	1.42576	1.60103	1.79586	2.01220	2.25219	2.51817	2.81266	3.13843	3.49845	3.89598
13	1.03299	1.06699	1.10201	1.13809	1.21355	1.29361	1.37851	1.46853	1.66507	1.88565	2.13293	2.40985	2.71962	3.06580	3.45227	3.88328	4.36349
14	1.03557	1.07232	1.11028	1.14947	1.23176	1.31948	1.41297	1.51259	1.73168	1.97993	2.26090	2.57853	2.93719	3.34173	3.79750	4.31044	4.88711
15	1.03816	1.07768	1.11860	1.16097	1.25023	1.34587	1.44830	1.55797	1.80094	2.07893	2.39656	2.75903	3.17217	3.62488	4.17725	4.78459	5.47357
16	1.04076	1.08307	1.12699	1.17258	1.26899	1.37279	1.48451	1.60471	1.87298	2.18287	2.54035	2.95216	3.42594	3.97031	4.59497	5.31089	6.13039
17	1.04336	1.08849	1.13544	1.18430	1.28802	1.40024	1.52162	1.65285	1.94790	2.29202	2.69277	3.15882	3.70002	4.32763	5.05447	5.89509	6.86604
18	1.04597	1.09393	1.14396	1.19615	1.30734	1.42825	1.55966	1.70243	2.02582	2.40662	2.85434	3.37993	3.99602	4.71712	5.55992	6.54355	7.68997
19	1.04858	1.09940	1.15254	1.20811	1.32695	1.45681	1.59865	1.75351	2.10685	2.52695	3.02560	3.61653	4.31570	5.14166	6.11591	7.26334	8.61276
20	1.05121	1.10490	1.16118	1.22019	1.34686	1.48595	1.63862	1.80611	2.19112	2.65330	3.20714	3.86968	4.66096	5.60441	6.72750	8.06231	9.64629
21	1.05383	1.11042	1.16989	1.23239	1.36706	1.51567	1.67958	1.86029	2.27877	2.78596	3.39956	4.14056	5.03383	6.10881	7.40025	8.94917	10.80385
22	1.05647	1.11597	1.17867	1.24472	1.38756	1.54598	1.72157	1.91610	2.36992	2.92526	3.60354	4.43040	5.43654	6.65860	8.14027	9.93357	12.10031
23	1.05911	1.12155	1.18751	1.25716	1.40838	1.57690	1.76461	1.97359	2.46472	3.07152	3.81975	4.74053	5.87146	7.25787	8.95430	11.02627	13.55235
24	1.06176	1.12716	1.19641	1.26973	1.42950	1.60844	1.80873	2.03279	2.56330	3.22510	4.04893	5.07237	6.34118	7.91108	9.84973	12.23916	15.17863
25	1.06441	1.13280	1.20539	1.28243	1.45095	1.64061	1.85394	2.09378	2.66584	3.38635	4.29187	5.42743	6.84848	8.62308	10.83471	13.58546	17.00006
30	1.07778	1.16140	1.25127	1.34785	1.56308	1.81136	2.09757	2.42726	3.24340	4.32194	5.74349	7.61226	10.06266	13.26768	17.44940	22.89230	29.95992
35	1.09132	1.19073	1.29890	1.41660	1.68388	1.99899	2.37321	2.81386	3.94609	5.51602	7.68609	10.67658	14.78534	20.41397	28.10244	38.57485	52.79962
40	1.10503	1.22079	1.34835	1.48886	1.81402	2.20804	2.68506	3.26204	4.80102	7.03999	10.28572	14.97446	21.72452	31.40942	45.25926	65.00087	93.05097
50	1.13297	1.28323	1.45296	1.64463	2.10524	2.69159	3.43711	4.38391	7.10668	11.46740	18.42015	29.45703	46.90161	74.35752	117.3909	184.5648	289.0022

P e r i o d s	PRESENT VALUE OF \$1																
	RATE PER PERIOD																
	0.25%	0.50%	0.75%	1.00%	1.50%	2.00%	2.50%	3.00%	4.00%	5.00%	6.00%	7.00%	8.00%	9.00%	10.00%	11.00%	12.00%
1	0.99751	0.99502	0.99256	0.99010	0.98522	0.98039	0.97561	0.97087	0.96154	0.95238	0.94340	0.93458	0.92593	0.91743	0.90909	0.90090	0.89286
2	0.99502	0.99007	0.98517	0.98030	0.97066	0.96117	0.95181	0.94260	0.92456	0.90703	0.89000	0.87344	0.85734	0.84168	0.82645	0.81162	0.79719
3	0.99254	0.98515	0.97783	0.97059	0.95632	0.94232	0.92860	0.91514	0.88900	0.86384	0.83962	0.81630	0.79383	0.77218	0.75131	0.73119	0.71178
4	0.99006	0.98025	0.97055	0.96098	0.94218	0.92385	0.90595	0.88849	0.85480	0.82270	0.79209	0.76290	0.73503	0.70843	0.68301	0.65873	0.63552
5	0.98759	0.97537	0.96333	0.95147	0.92826	0.90573	0.88385	0.86261	0.82193	0.78353	0.74726	0.71299	0.68058	0.64993	0.62092	0.59345	0.56743
6	0.98513	0.97052	0.95616	0.94205	0.91454	0.88797	0.86230	0.83748	0.79031	0.74622	0.70496	0.66634	0.63017	0.59627	0.56447	0.53464	0.50663
7	0.98267	0.96569	0.94904	0.93272	0.90103	0.87056	0.84127	0.81309	0.75992	0.71068	0.66506	0.62275	0.58349	0.54703	0.51316	0.48166	0.45235
8	0.98022	0.96089	0.94198	0.92348	0.88771	0.85349	0.82075	0.78941	0.73069	0.67684	0.62741	0.58201	0.54027	0.50187	0.46651	0.43393	0.40388
9	0.97778	0.95610	0.93496	0.91434	0.87459	0.83676	0.80073	0.76642	0.70259	0.64461	0.59190	0.54393	0.50025	0.46043	0.42410	0.39092	0.36061
10	0.97534	0.95135	0.92800	0.90529	0.86167	0.82035	0.78120	0.74409	0.67556	0.61391	0.55839	0.50835	0.46319	0.42241	0.38554	0.35218	0.32197
11	0.97291	0.94661	0.92109	0.89632	0.84893	0.80426	0.76214	0.72242	0.64958	0.58468	0.52679	0.47509	0.42888	0.38753	0.35049	0.31728	0.28748
12	0.97048	0.94191	0.91424	0.88745	0.83639	0.78849	0.74356	0.70138	0.62460	0.55684	0.49697	0.44401	0.39711	0.35553	0.31863	0.28584	0.25668
13	0.96806	0.93722	0.90743	0.87866	0.82403	0.77303	0.72542	0.68095	0.60057	0.53032	0.46884	0.41496	0.36770	0.32618	0.28966	0.25751	0.22917
14	0.96565	0.93256	0.90068	0.86996	0.81185	0.75788	0.70773	0.66112	0.57748	0.50507	0.44230	0.38782	0.34046	0.29925	0.26333	0.23199	0.20462
15	0.96324	0.92792	0.89397	0.86135	0.79985	0.74301	0.69047	0.64186	0.55526	0.48102	0.41727	0.36245	0.31524	0.27454	0.23939	0.20900	0.18270
16	0.96084	0.92330	0.88732	0.85262	0.78803	0.72845	0.67362	0.62317	0.53391	0.45811	0.39365	0.33873	0.29189	0.25187	0.21763	0.18829	0.16312
17	0.95844	0.91871	0.88071	0.84438	0.77639	0.71416	0.65720	0.60502	0.51337	0.43630	0.37136	0.31657	0.27027	0.23107	0.19784	0.16963	0.14564
18	0.95605	0.91414	0.87416	0.83602	0.76491	0.70016	0.64117	0.58739	0.49363	0.41552	0.35034	0.29586	0.25025	0.21199	0.17986	0.15282	0.13004
19	0.95367	0.90959	0.86765	0.82774	0.75361	0.68643	0.62553	0.57029	0.47464	0.39573	0.33051	0.27651	0.23171	0.19449	0.16351	0.13768	0.11611
20	0.95129	0.90506	0.86119	0.81954	0.74247	0.67297	0.61027	0.55368	0.45639	0.37689	0.31180	0.25842	0.21455	0.17843	0.14864	0.12403	0.10367
21	0.94892	0.90056	0.85478	0.81143	0.73150	0.65978	0.59539	0.53755	0.43883	0.35894	0.29416	0.24151	0.19866	0.16370	0.13513	0.11174	0.09256
22	0.94655	0.89608	0.84842	0.80340	0.72069	0.64684	0.58086	0.52189	0.42196	0.34185	0.27751	0.22571	0.18394	0.15018	0.12285	0.10067	0.08264
23	0.94419	0.89162	0.84210	0.79544	0.71004	0.63416	0.56670	0.50689	0.40573	0.32557	0.26180	0.21095	0.17032	0.13778	0.11168	0.09069	0.07379
24	0.94184	0.88719	0.83583	0.78757	0.69954	0.62172	0.55288	0.49193	0.39012	0.31007	0.24698	0.19715	0.15770	0.12640	0.10153	0.08170	0.06588
25	0.93949	0.88277	0.82961	0.77977	0.68921	0.60953	0.53939	0.47761	0.37512	0.29530	0.23300	0.18425	0.14602	0.11597	0.09230	0.07361	0.05882
30																	

P e r i o d s	FUTURE VALUE OF ANNUITY DUE (annuity in advance -- beginning of period payments)																
	RATE PER PERIOD																
	0.25%	0.50%	0.75%	1.00%	1.50%	2.00%	2.50%	3.00%	4.00%	5.00%	6.00%	7.00%	8.00%	9.00%	10.00%	11.00%	12.00%
1	1.00250	1.00500	1.00750	1.01000	1.01500	1.02000	1.02500	1.03000	1.04000	1.05000	1.06000	1.07000	1.08000	1.09000	1.10000	1.11000	1.12000
2	2.00751	2.01502	2.02256	2.03010	2.04522	2.06040	2.07563	2.09090	2.12160	2.15250	2.18360	2.21490	2.24640	2.27810	2.31000	2.34210	2.37440
3	3.01503	3.03010	3.04523	3.06040	3.09090	3.12161	3.15252	3.18363	3.24646	3.31013	3.37462	3.43994	3.50611	3.57313	3.64100	3.70973	3.77933
4	4.02506	4.05025	4.07556	4.10101	4.15227	4.20404	4.25633	4.30914	4.41632	4.52563	4.63709	4.75074	4.86660	4.98471	5.10510	5.22780	5.35285
5	5.03763	5.07550	5.11363	5.15202	5.22955	5.30812	5.38774	5.46841	5.63298	5.80191	5.97532	6.15329	6.33593	6.52333	6.71561	6.91286	7.11519
6	6.05272	6.10588	6.15948	6.21354	6.32299	6.43428	6.54743	6.66246	6.89829	7.14201	7.39384	7.65402	7.92280	8.20043	8.48717	8.78327	9.08901
7	7.07035	7.14141	7.21318	7.28567	7.43284	7.58297	7.73612	7.89234	8.21423	8.54911	8.89747	9.25980	9.63663	10.02847	10.43589	10.85943	11.29969
8	8.09053	8.18212	8.27478	8.36853	8.55933	8.75463	8.95452	9.15911	9.58280	10.02656	10.49132	10.97799	11.48756	12.02104	12.57948	13.16397	13.77568
9	9.11325	9.22803	9.34434	9.46221	9.70272	9.94972	10.20338	10.46388	11.00611	11.57789	12.18079	12.81645	13.48656	14.19293	14.93742	15.72201	16.54874
10	10.13854	10.27917	10.42192	10.56683	10.86326	11.16872	11.48347	11.80780	12.48635	13.20679	13.97164	14.78360	15.64549	16.56029	17.53117	18.56143	19.65458
11	11.16638	11.33556	11.50759	11.68250	12.04121	12.41209	12.79555	13.19203	14.02581	14.91713	15.86994	16.88845	17.97713	19.14072	20.38428	21.71319	23.13313
12	12.19680	12.39724	12.60139	12.80933	13.23683	13.68033	14.14044	14.61779	15.62684	16.71298	17.88214	19.14064	20.49530	21.95338	23.52271	25.21164	27.02911
13	13.22979	13.46423	13.70340	13.94742	14.45038	14.97394	15.51895	16.08632	17.29191	18.59863	20.01507	21.55049	23.21492	25.01919	26.97498	29.09492	31.39260
14	14.26537	14.53655	14.81368	15.09690	15.68214	16.29342	16.93193	17.59891	19.02359	20.57856	22.27597	24.12902	26.15211	28.36092	30.77248	33.40536	36.27971
15	15.30353	15.61423	15.93228	16.25786	16.93237	17.63929	18.38022	19.15688	20.82453	22.65749	24.67253	26.88805	29.32428	32.00340	34.94973	38.18995	41.75328
16	16.34429	16.69730	17.05927	17.43044	18.20136	19.01207	19.86473	20.76159	22.69751	24.84037	27.21288	29.84022	32.75023	35.97370	39.54470	43.50084	47.88367
17	17.38765	17.78579	18.19472	18.61475	19.48938	20.41231	21.38635	22.41444	24.64541	27.13238	29.90565	32.99903	36.45024	40.30134	44.59917	49.39594	54.74971
18	18.43362	18.87972	19.33868	19.81090	20.79672	21.84056	22.94601	24.11687	26.67123	29.53900	32.75999	36.37896	40.44626	45.01846	50.15909	55.93949	62.43968
19	19.48220	19.97912	20.49122	21.01900	22.12367	23.29737	24.54466	25.87037	28.77808	32.06595	35.78559	39.99549	44.76196	50.16012	56.27500	63.20283	71.05244
20	20.53341	21.08401	21.65240	22.23919	23.47052	24.78332	26.18327	27.67649	30.96920	34.71925	38.99273	43.86518	49.42292	55.76453	63.00250	71.26514	80.69874
21	21.58724	22.19443	22.82230	23.47159	24.83758	26.29898	27.86286	29.53678	33.24797	37.50521	42.39229	48.00574	54.45676	61.87334	70.40275	80.21431	91.50258
22	22.64371	23.31040	24.00096	24.71630	26.22514	27.84496	29.58443	31.45288	35.61789	40.43048	45.99583	52.43614	59.89330	68.53194	78.54302	90.14788	103.6029
23	23.70282	24.43196	25.18847	25.97346	27.63352	29.42186	31.34904	33.42647	38.08260	43.50200	49.81558	57.17667	65.76476	75.78981	87.49733	101.1742	117.1552
24	24.76457	25.55912	26.38488	27.24320	29.06302	31.03030	33.15776	35.45926	40.64591	46.72710	53.86451	62.24904	72.10594	83.70090	97.34706	113.4133	132.3339
25	25.82899	26.69191	27.59027	28.52563	30.51397	32.67091	35.01171	37.55304	43.31174	50.11345	58.15638	67.67647	78.95442	92.32398	108.1818	126.9988	149.3339
30	31.19109	32.44142	33.75417	35.13274	38.10176	41.37944	45.00027	49.00268	58.32834	69.76079	83.80168	101.0730	122.3459	148.5752	180.9434	220.9132	270.2926
35	36.62056	38.33610	40.15272	42.07688	46.27597	50.99437	56.30141	62.27594	76.59831	94.83632	118.1209	147.9135	186.1021	235.1247	298.1268	379.1644	483.4631
40	42.11824	44.37964	46.79483	49.37524	55.08191	61.61002	69.08762	77.66330	98.82654	126.8398	164.0477	213.6096	279.7810	368.2919	486.8518	645.8269	859.1424
50	53.32165	56.92839	60.84721	65.10781	74.78807	86.27099	99.92146	116.1808	158.7738	219.8154	307.7561	434.9860	619.6718	888.4411	1280.299	1852.336	2688.020

P e r i o d s	PRESENT VALUE OF ORDINARY ANNUITY (annuity in arrears -- end of period payments)																
	RATE PER PERIOD																
	0.25%	0.50%	0.75%	1.00%	1.50%	2.00%	2.50%	3.00%	4.00%	5.00%	6.00%	7.00%	8.00%	9.00%	10.00%	11.00%	12.00%
1	0.99751	0.99502	0.99256	0.99010	0.98522	0.98039	0.97561	0.97087	0.96154	0.95238	0.94340	0.93458	0.92593	0.91743	0.90909	0.90090	0.89286
2	1.99252	1.98510	1.97772	1.97040	1.95588	1.94156	1.92742	1.91347	1.88609	1.85941	1.83339	1.80802	1.78326	1.75911	1.73554	1.71252	1.69005
3	2.98506	2.97025	2.95556	2.94099	2.91220	2.88388	2.85602	2.82861	2.77509	2.72325	2.67301	2.62432	2.57710	2.53129	2.48685	2.44371	2.40183
4	3.97512	3.95050	3.92611	3.90197	3.85438	3.80773	3.76197	3.71710	3.62990	3.54595	3.46511	3.38721	3.31213	3.23972	3.16987	3.10245	3.03735
5	4.96272	4.92587	4.88944	4.85343	4.78264	4.71346	4.64583	4.57971	4.45182	4.32948	4.21236	4.10020	3.99271	3.88965	3.79079	3.69590	3.60478
6	5.94785	5.89638	5.84500	5.79548	5.69719	5.60143	5.50813	5.41719	5.24214	5.07569	4.91732	4.76654	4.62288	4.48592	4.35526	4.23054	4.11141
7	6.93052	6.86207	6.79464	6.72819	6.59821	6.47199	6.34939	6.23028	6.00205	5.78637	5.58238	5.38929	5.20637	5.03295	4.86842	4.71220	4.56376
8	7.91074	7.82296	7.73661	7.65168	7.48593	7.32548	7.17014	7.01969	6.73274	6.46321	6.20979	5.97130	5.74664	5.53482	5.33493	5.14612	4.96764
9	8.88852	8.77906	8.67158	8.56602	8.36052	8.16224	7.97087	7.78611	7.43533	7.10782	6.80169	6.51523	6.24689	5.99525	5.75902	5.53705	5.32825
10	9.86386	9.73041	9.59958	9.47130	9.22218	8.98259	8.75206	8.53020	8.11090	7.72173	7.36009	7.02358	6.71008	6.41786	6.14457	5.88923	5.65022
11	10.83677	10.67703	10.52067	10.36763	10.07112	9.78685	9.51421	9.25262	8.76048	8.30641	7.88687	7.49867	7.13896	6.80519	6.49506	6.20652	5.93770
12	11.80725	11.61893	11.43491	11.25508	10.90751	10.57534	10.25776	9.95400	9.38507	8.86325	8.38384	7.94269	7.53608	7.16073	6.81369	6.49236	6.19437
13	12.77532	12.55615	12.34235	12.13374	11.73153	11.34837	10.98318	10.63496	9.98565	9.39357	8.85268	8.35765	7.90378	7.48690	7.10336	6.74987	6.42355
14	13.74096	13.48871	13.24302	13.00370	12.54338	12.10625	11.69091	11.29607	10.56312	9.89864	9.29498	8.74547	8.24424	7.78615	7.36669	6.98187	6.62817
15	14.70420	14.41662	14.13699	13.86505	13.34323	12.84926	12.38138	11.93794	11.11839	10.37966	9.71225	9.10791	8.55948	8.06069	7.60608	7.19087	6.81086
16	15.66504	15.33993	15.02431	14.71787	14.13126	13.57771	13.05500	12.56110	11.65230	10.83777	10.10590	9.44665	8.85137	8.31256	7.82371	7.37916	6.97399
17	16.62348	16.25863	15.90502	15.56225	14.90765	14.29187	13.71220	13.16612	12.16567	11.27407	10.47726	9.76322	9.12164	8.54363	8.02155	7.54879	7.11963
18	17.57963	17.17277	16.77918	16.39827	15.67256	14.99203	14.35336	13.75351	12.65930	11.68959	10.82760	10.05909	9.37189	8.75563	8.20141	7.70162	7.24967
19	18.53320	18.08236	17.64683	17.22601	16.42617	15.67846	14.97889	14.32380	13.13394	12.08532	11.15812	10.33560	9.60360	8.95011	8.36492	7.83929	7.36578
20	19.48449	18.98742	18.50802	18.04555	17.16884	16.35143	15.58916	14.87747	13.59033	12.46221	11.46992	10.59401	9.81815	9.12855	8.51356	7.96333	7.46944
21	20.43340	19.88798	19.36280	18.85698	17.90014	17.10121	16.34455	15.61502	14.02916	12.82115	11.76408	10.83553	10.01680	9.29224	8.64869	8.07507	7.56200
22	21.37995	20.78406	20.21121	19.66038	18.62082	17.65805	16.76541	15.93692	14.45112	13.16300	12.04158	11.06124	10.20074	9.44243	8.77154	8.17574	7.64465
23	22.32414	21.67568	21.05331	20.45582	19.33086	18.29220	17.33211	16.44361	14.85684	13.48857	12.30338	11.27219	10.37106	9.580			