Angka Giliran:_____

UNIVERSITI SAINS MALAYSIA

Peperiksaan Semester Kedua
Sidang Akademik 2002/2003

Februari/Mac 2003

JTW 261 – Prinsip Kewangan

Masa : 3 jam

Sila pastikan bahawa kertas peperiksaan ini mengandungi DUA BELAS muka surat yang bercetak sebelum anda memulakan peperiksaan ini.

Jawab SEMUA soalan dalam Bahagian A dan Bahagian B. Jawapan Bahagian A hendaklah ditandakan dalam borang OMR dengan menggunakan pensil 2B dan dihantar berasingan daripada buku jawapan.

Pastikan anda isikan nombor angka giliran anda dengan betul dalam petak yang disediakan mulai daripada petak pertama DAN hitamkan ruang-ruang berkenaan dalam borang OMR yang telah disediakan DENGAN menggunakan PENSIL 2B.

Jangan KEPIL, LIPAT atau TEBUK borang OMR.

Baca arahan dengan teliti sebelum anda menjawab soalan ini.

...2/-

BAHAGIAN A (20 markah)

SOALAN 1

Setiap soalan bernilai satu markah.

1. Penyata pendapatan menerangkan kedudukan kewangan sesebuah syarikat pada suatu tarikh tertentu.

   A. Betul B. Salah

2. Nilai masa depan sesuatu pelaburan meningkat apabila bilangan tahun memkompaunkan deposit pada kadar faedah positif berkurangan.

   A. Betul B. Salah

3. Satu ciri bagi anuiti ialah suatu jumlah wang yang sama didepositkan atau dikeluarkan pada setiap tempoh.

   A. Betul B. Salah

4. Kepelbagaian (diversification) dalam kadar pulangan sesuatu pelaburan ialah suatu pengukuran bagi kerisikoan pelaburan tersebut.

   A. Betul B. Salah

5. Saham biasa tidak boleh mempunyai nilai lebih rendah daripada nilai bukunya.

   A. Betul B. Salah

6. Bon biasanya mempunyai suatu tarikh matang manakala saham keutamaan tidak mempunyai tarikh matang.

   A. Betul B. Salah

7. Kadar pulangan dijangka bagi sesuatu aset adalah bersamaan dengan kadar risiko bebas tambah dengan risiko premium.

   A. Betul B. Salah

8. Kos modal sesuatu syarikat berbeza mengikut risiko perniagaan dan risiko kewangan.

   A. Betul B. Salah

9. Apabila mempertimbangkan suatu projek pelaburan berisiko, kita mesti menganalisis kepelbagaian kejadian yang mungkin bagi nilai masa kini bersih projek tersebut.

A. Betul B. Salah

10. Satu kelemahan simulasi ialah keputusan adalah berdasarkan hanya pada suatu titik jangkaan dan bukannya kepada suatu julat kejadian yang berkemungkinan.

A. Betul B. Salah

11. Industri yang manakah mempunyai nisbah pusinganti inventori yang paling tinggi?

A. Stor peruncit pakaian
B. Barang kemas
C. Automobil
D. Gedung pasaran

12. Andaikan dua pelaburan mempunyai tempoh pelaburan yang sama, kadar diskaun yang lebih tinggi akan memanfaatkan

A. pelaburan yang mempunyai aliran tunai yang banyak pada permulaan tempoh
B. pelaburan yang mempunyai aliran tunai yang banyak pada hujung tempoh
C. pelaburan yang mempunyai aliran tunai yang sama
D. tiada sebarang pelaburan kerana kedua-dua pelaburan mempunyai tempoh masa yang sama.

13. Sesuatu projek menghasilkan kesan kepelbagaian (diversification) bagi sesuatu firma hanya jika:

A. Pekali variasi bagi keseluruhan aliran tunai firma adalah lebih rendah selepas penerimaan projek berbanding dengan sebelum penerimaan projek tersebut.
B. Pekali korelasi antara aliran tunai projek yang diterima dengan aliran tunai semasa ialah negatif.
C. Pemegang saham firma boleh melabur di beberapa syarikat yang berlainan.
D. Kadar pulangan yang diperlukan bagi projek baru diselaraskan rendah untuk risiko.

14. Garisan pasar sekuriti (security market line) menunjukkan

A. Pulangan yang diperlukan di dalam pasaran bagi setiap tahap risiko bukan diversifikasi.
B. Kadar diskaun terselaras risiko (risk adjusted discount rate) dianggar untuk mengira nilai masa kini sesuatu aliran tunai berisiko.
C. Hubungan di antara pulangan sesuatu aset dan pulangan pasaran.
D. Tiada satupun dari di atas.

15. Kesemua taburan normal mempunyai _____ yang sama.

A. kecondongan
B. pekali variasi
C. sisihan piawai
D. min

16. Jika kadar pulangan dalaman adalah lebih besar daripada kadar pulangan yang dijangka

A. Kesemua nilai masa kini aliran tunai masuk akan kurang daripada aliran tunai keluar asal
B. Tempoh bayaran balik akan kurang daripada tempoh hayat pelaburan
C. Projek pelaburan harus diterima
D. A. and B

17. Nilai sisaan tidak akan dipertimbangkan di dalam pengiraan

A. Nilai masa kini bersih
B. Kadar pulangan dalaman
C. Tempoh bayaran balik
D. A. dan B

18. Kos modal ialah

A. Kadar faedah kupon bagi hutang
B. Kadar yang ditetapkan oleh lembaga
C. Kadar pulangan yang mesti diperolehi atas pelaburan tambahan jika nilai syarikat ingin dikekalkan
D. Kos purata bagi aset firma

19. Yang mana di antara aktiviti berikut akan meningkatkan risiko kewangan?

A. Mengurangkan dividen
B. Meningkatkan saham biasa
C. Meningkatkan saham keutamaan
D. A dan C

20. Kos saham keutamaan adalah sama dengan

A. Dividen saham keutamaan dibahagikan dengan harga pasaran
B. Dividen saham keutamaan dibahagikan dengan nilai muka
C. (1-kadar cukai) kali dengan dividen saham keutamaan dan dibahagikan dengan harga bersih
D. Dividen saham keutamaan dibahagikan dengan harga pasaran bersih

BAHAGIAN B

2. (a) Gina membuat keputusan untuk menjual sebahagian daripada tanah yang diwarisi olehnya sejak beberapa tahun dahulu. Seorang pembeli sanggup membayar RM 24,000 pada masa urusniaga tersebut dibuat ataupun membayar jumlah yang ditunjukkan dalam jadual di bawah pada awal setiap tahun selama 5 tahun yang akan datang. Oleh kerana Gina buat sementara waktu tidak memerlukan wang tersebut untuk perbelanjaan, dia bercadang untuk membiarkan nilai ini terkumpul di dalam bank yang memberi kadar faedah tahunan sebanyak 7%. Andaikan Gina ingin membeli sebuah rumah pada akhir tempoh 5 tahun selepas jualan tanahnya, dia perlu memilih bayaran alternatif – RM 24,000 secara sekali gus atau bayaran campuran yang ditunjukkan dalam jadual di bawah :

Awal tahun	Aliran tunai (RM)
1	2,000
2	4,000
3	6,000
4	8,000
5	10,000

(i) Apakah nilai masa depan bagi bayaran sekali gus pada akhir tahun kelima?

(3 markah)

(ii) Apakah nilai masa depan bagi bayaran campuran pada akhir tahun kelima?

(5 markah)

(iii) Berdasarkan jawapan anda di bahagian (a) dan (b), yang mana satukah alternatif yang harus dipilih oleh Gina?

(2 markah)

(iv) Jika Gina boleh memperolehi 10% dan bukan 7% ke atas dananya, adakah cadangan anda di bahagian (c) berubah? Mengapa?

(4 markah)

(b) Salma ingin membeli sebuah kereta terpakai dan dia menjumpai sebuah kereta yang disukainya yang berharga RM 4,500. Penjual kereta memberitahu Salma bahawa Salma boleh bayar wang pendahuluan sebanyak RM 500, dan bakinya boleh dibiayai pada kadar faedah tahunan sebanyak 12% selama 2 tahun. Andaikan Salma menerima tawaran tersebut, berapakah bayaran bulanan yang perlu dibuat oleh Salma?

(6 markah)

3. (a) Saham biasa Syarikat ABC dibayar dividen sebanyak RM 1.20 sesaham pada tahun lepas. Syarikat tersebut menjangka pulangan dan dividen akan bertumbuh pada kadar 5% setahun sehingga masa depan.

(i) Berapakah kadar pulangan yang dijangka untuk saham ini untuk memberi nilai sesaham sebanyak RM 28?

(4 markah)

(ii) Jika Syarikat ABC mempunyai kadar pertumbuhan pulangan dan dividen sebanyak 15%, berapakah kadar pulangan yang dijangka untuk saham ini untuk memberi nilai sesaham sebanyak RM 28?

(4 markah)

(b) Muthu bercadang untuk melabur dalam salah satu daripada 2 bon yang sedia ada. Kedua-dua bon mempunyai nilai muka sebanyak RM 1,000 dan kadar faedah kupon tahunan sebanyak 10% serta membayar faedah secara tahunan. Bon A mempunyai tempoh matang 5 tahun dan bon B mempunyai tempoh matang 15 tahun.

(i) Kira nilai bagi bon A pada 8% dan 11%.

(4 markah)

(ii) Kira nilai bagi bon B pada 8% dan 11%.

(4 markah)

(iii) Daripada jawapan anda di bahagian (a) dan (b), nyatakan hubungan antara tempoh matang dan perubahan kadar pulangan yang dijangka terhadap nilai bon.

(4 markah)

4. Dave ingin membeli sebuah mesin pencetak dan dia belum membuat keputusan untuk membeli yang mana satu di antara 2 mesin pencetak yang dipamerkan di kedai komputer. Dave menjangka pelaburan asal dan aliran tunai positif bersih untuk 3 tahun bagi setiap mesin adalah seperti yang ditunjukkan dalam jadual yang berikut. Andaikan setiap mesin tiada nilai sisaan selepas 3 tahun digunakan. Kadar pulangan yang dijangka ialah 10% setahun.

Aliran Tunai Bersih Yang Dijangka		
Tahun	Mesin Pencetak 1 (RM)	Mesin Pencetak 2 (RM)
0	(2,000)	(2,500)
1	900	1,500
2	1100	1,300
3	1300	800

(a) Kira tempoh bayaran balik untuk setiap mesin pencetak.

(4 markah)

(b) Kira nilai masa kini bersih untuk setiap mesin pencetak.

(4 markah)

(c) Kira Kadar pulangan dalaman bagi setiap mesin pencetak.

(4 markah)

(d) Yang mana satukah mesin pencetak yang anda akan cadangkan? Mengapa?

(4 markah)

(e) Andaikan kadar pulangan yang dijangka bagi Dave ialah 6%, adakah keputusan tentang yang mana satu mesin pencetak yang akan dibeli berubah?

(4 markah)

5. Kunci kira-kira terbaru bagi Syarikat Dinamik mempunyai item seperti berikut (nilai Ringgit dinyatakan dalam juta).

	RM
Tunai	47,524
Sekuriti boleh dipasar	55,926
Akaun belum terima	23,553
Inventori	32,210
Belanja prabayar	5,736
Perolehan tertahan	121,477
Nota belum bayar (matang dalam masa satu tahun)	20,000
Akaun belum bayar	5,912
Dividen belum bayar	1,424
Liabiliti terakru	21,532
Cukai belum bayar	6,438

Syarikat ini melapor jumlah aset sebanyak RM 353,816,000, jumlah liabiliti sebanyak RM 81,630,000 dan pulangan ke atas aset sebanyak 18.1%

(a) Kira nilai bagi (i) aset cepat, (ii) aset semasa, dan (iii) liabiliti semasa bagi Syarikat Dinamik.

(6 markah)

(b) Kira nilai bagi (i) nisbah cepat, (ii) nisbah semasa, (iii) modal kerja dan (iv) nisbah hutang bagi Syarikat Dinamik.

(8 markah)

(c) Bincangkan tentang kecairan syarikat dari segi pandangan (i) pemiutang jangka-pendek, (ii) pemiutang jangka panjang dan (iii) pemegang saham.

(6 markah)

TABLE A-1 Future Value Interest Factors for One Dollar Compounded at k Percent for n Periods: $FVIF_{k,n} = (1 + k)^n$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	25%	30%	35%
1	1.010	1.020	1.030	1.040	1.050	1.060	1.070	1.080	1.090	1.100	1.110	1.120	1.130	1.140	1.150	1.160	1.200	1.250	1.300	1.350
2	1.020	1.040	1.061	1.082	1.102	1.124	1.145	1.166	1.188	1.210	1.232	1.254	1.277	1.300	1.322	1.346	1.440	1.562	1.690	1.822
3	1.030	1.061	1.093	1.125	1.158	1.191	1.225	1.260	1.295	1.331	1.368	1.405	1.443	1.482	1.521	1.561	1.728	1.953	2.197	2.460
4	1.041	1.082	1.126	1.170	1.216	1.262	1.311	1.360	1.412	1.464	1.518	1.574	1.630	1.689	1.749	1.811	2.074	2.441	2.856	3.321
5	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539	1.611	1.685	1.762	1.842	1.925	2.011	2.100	2.488	3.052	3.713	4.484
6	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677	1.772	1.870	1.974	2.082	2.195	2.313	2.436	2.986	3.815	4.827	6.053
7	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828	1.949	2.076	2.211	2.353	2.502	2.660	2.826	3.583	4.768	6.275	8.172
8	1.083	1.172	1.267	1.369	1.477	1.594	1.718	1.851	1.993	2.144	2.305	2.476	2.658	2.853	3.059	3.278	4.300	5.960	8.157	11.032
9	1.094	1.195	1.305	1.423	1.551	1.689	1.838	1.999	2.172	2.358	2.558	2.771	3.004	3.252	3.518	3.803	5.160	7.451	10.604	14.894
10	1.105	1.219	1.344	1.480	1.629	1.791	1.967	2.159	2.367	2.594	2.839	3.106	3.395	3.707	4.046	4.411	6.192	9.313	13.786	20.106
11	1.116	1.243	1.384	1.539	1.710	1.898	2.105	2.332	2.580	2.853	3.152	3.479	3.836	4.226	4.652	5.117	7.430	11.642	17.921	27.144
12	1.127	1.268	1.426	1.601	1.796	2.012	2.252	2.518	2.813	3.138	3.498	3.896	4.334	4.818	5.350	5.936	8.916	14.552	23.298	36.644
13	1.138	1.294	1.469	1.665	1.886	2.133	2.410	2.720	3.066	3.452	3.883	4.363	4.898	5.492	6.153	6.886	10.699	18.190	30.287	49.469
14	1.149	1.319	1.513	1.732	1.980	2.261	2.579	2.937	3.342	3.797	4.310	4.887	5.535	6.261	7.076	7.987	12.839	22.737	39.373	66.784
15	1.161	1.346	1.558	1.801	2.079	2.397	2.759	3.172	3.642	4.177	4.785	5.474	6.254	7.138	8.137	9.265	15.407	28.422	51.185	90.158
16	1.173	1.373	1.605	1.873	2.183	2.540	2.952	3.426	3.970	4.595	5.311	6.130	7.067	8.137	9.358	10.748	18.488	35.527	66.541	121.713
17	1.184	1.400	1.653	1.948	2.292	2.693	3.159	3.700	4.328	5.054	5.895	6.866	7.986	9.276	10.761	12.468	22.186	44.409	86.503	164.312
18	1.196	1.428	1.702	2.026	2.407	2.854	3.380	3.996	4.717	5.560	6.543	7.690	9.024	10.575	12.375	14.462	26.623	55.511	112.454	221.822
19	1.208	1.457	1.754	2.107	2.527	3.026	3.616	4.316	5.142	6.116	7.263	8.613	10.197	12.055	14.232	16.776	31.948	69.389	146.190	299.459
20	1.220	1.486	1.806	2.191	2.653	3.207	3.870	4.661	5.604	6.727	8.062	9.646	11.523	13.743	16.366	19.461	38.337	86.736	190.047	404.270
21	1.232	1.516	1.860	2.279	2.786	3.399	4.140	5.034	6.109	7.400	8.949	10.804	13.021	15.667	18.821	22.574	46.005	108.420	247.061	545.764
22	1.245	1.546	1.916	2.370	2.925	3.603	4.430	5.436	6.658	8.140	9.933	12.100	14.713	17.861	21.644	26.186	55.205	135.525	321.178	736.781
23	1.257	1.577	1.974	2.465	3.071	3.820	4.740	5.871	7.258	8.954	11.026	13.552	16.626	20.361	24.891	30.376	66.247	169.407	417.531	994.653
24	1.270	1.608	2.033	2.563	3.225	4.049	5.072	6.341	7.911	9.850	12.239	15.178	18.788	23.212	28.625	35.236	79.496	211.758	542.791	1342.781
25	1.282	1.641	2.094	2.666	3.386	4.292	5.427	6.848	8.623	10.834	13.585	17.000	21.230	26.461	32.918	40.874	95.395	264.698	705.627	1812.754
30	1.348	1.811	2.427	3.243	4.322	5.743	7.612	10.062	13.267	17.449	22.892	29.960	39.115	50.949	66.210	85.849	237.373	807.793	2619.936	8128.426
35	1.417	2.000	2.814	3.946	5.516	7.686	10.676	14.785	20.413	28.102	38.574	52.799	72.066	98.097	133.172	180.311	590.657	2465.189	9727.598	36448.051
40	1.489	2.208	3.262	4.801	7.040	10.285	14.974	21.724	31.408	45.258	64.999	93.049	132.776	188.876	267.856	378.715	1469.740	7523.136	36117.714	163433.875
45	1.565	2.438	3.781	5.841	8.985	13.764	21.002	31.920	48.325	72.888	109.527	163.985	244.629	363.662	538.752	795.429	3657.176	22938.844	134102.187	*
50	1.645	2.691	4.384	7.106	11.467	18.419	29.456	46.900	74.354	117.386	184.559	288.996	450.711	700.197	1083.619	1670.669	9100.191	70064.812	497910.125	*

Using the calculator to compute the future value of a single amount

Before you begin, make sure to clear the memory, ensure that you are in the *end mode* and your calculator is set for *one payment per year*, and set the number of decimal places that you want (usually two for dollar-related accuracy).

SAMPLE PROBLEM You place $800 in a savings account at 6 percent compounded annually. What is your account balance at the end of 5 years?

Hewlett-Packard HP 12C, 17 BII, and 19 BII+

Inputs:	800	5	6	
Functions:	PV	N	I/YR	FV
Outputs:				1070.58 [b]

Texas Instruments BA-35, BAII, BAII Plus[c]

Inputs:	800	5	6		
Functions:	PV	N	%I	CPT	FV
Outputs:					-1070.58 [d]

[a] For the 12C, you would use the (n) key instead of the (N) key, and the (i) key instead of the (I/YR) key.

[b] The minus sign that precedes the output should be ignored.

[c] For the Texas Instruments BAII, you would use the (2nd) key instead of the (CPT) key; for the Texas Instruments BAII Plus, you would use the (2nd) key instead of the (%I) key.

[d] If a minus sign precedes the output, it should be ignored.

TABLE A-2 Future Value Interest Factors for a One-Dollar Annuity Compounded at k Percent for n Periods: $FVIFA_{k,n} = \sum_{t=1}^{n} (1+k)^{t-1}$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	25%	30%	35%
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2	2.010	2.020	2.030	2.040	2.050	2.060	2.070	2.080	2.090	2.100	2.110	2.120	2.130	2.140	2.150	2.160	2.200	2.250	2.300	2.350
3	3.030	3.060	3.091	3.122	3.152	3.184	3.215	3.246	3.278	3.310	3.342	3.374	3.407	3.440	3.472	3.506	3.640	3.813	3.990	4.172
4	4.060	4.122	4.184	4.246	4.310	4.375	4.440	4.506	4.573	4.641	4.710	4.779	4.850	4.921	4.993	5.066	5.368	5.766	6.187	6.633
5	5.101	5.204	5.309	5.416	5.526	5.637	5.751	5.867	5.985	6.105	6.228	6.353	6.480	6.610	6.742	6.877	7.442	8.207	9.043	9.954
6	6.152	6.308	6.468	6.633	6.802	6.975	7.153	7.336	7.523	7.716	7.913	8.115	8.323	8.536	8.754	8.977	9.930	11.259	12.756	14.438
7	7.214	7.434	7.662	7.898	8.142	8.394	8.654	8.923	9.200	9.487	9.783	10.089	10.405	10.730	11.067	11.414	12.916	15.073	17.583	20.492
8	8.286	8.583	8.892	9.214	9.549	9.897	10.260	10.637	11.028	11.436	11.859	12.300	12.757	13.233	13.727	14.240	16.499	19.842	23.858	28.664
9	9.368	9.755	10.159	10.583	11.027	11.491	11.978	12.488	13.021	13.579	14.164	14.776	15.416	16.085	16.786	17.518	20.799	25.802	32.015	39.696
10	10.462	10.950	11.464	12.006	12.578	13.181	13.816	14.487	15.193	15.937	16.722	17.549	18.420	19.337	20.304	21.321	25.959	33.253	42.619	54.590
11	11.567	12.169	12.808	13.486	14.207	14.972	15.784	16.645	17.560	18.531	19.561	20.655	21.814	23.044	24.349	25.733	32.150	42.566	56.405	74.696
12	12.683	13.412	14.192	15.026	15.917	16.870	17.888	18.977	20.141	21.384	22.713	24.133	25.650	27.271	29.001	30.850	39.580	54.208	74.326	101.840
13	13.809	14.680	15.618	16.627	17.713	18.882	20.141	21.495	22.953	24.523	26.211	28.029	29.984	32.088	34.352	36.786	48.496	68.760	97.624	138.484
14	14.947	15.974	17.086	18.292	19.598	21.015	22.550	24.215	26.019	27.975	30.095	32.392	34.882	37.581	40.504	43.672	59.196	86.949	127.912	187.953
15	16.097	17.293	18.599	20.023	21.578	23.276	25.129	27.152	29.361	31.772	34.405	37.280	40.417	43.842	47.580	51.659	72.035	109.687	167.285	254.737
16	17.258	18.639	20.157	21.824	23.657	25.672	27.888	30.324	33.003	35.949	39.190	42.753	46.671	50.980	55.717	60.925	87.442	138.109	218.470	344.895
17	18.430	20.012	21.761	23.697	25.840	28.213	30.840	33.750	36.973	40.544	44.500	48.884	53.738	59.117	65.075	71.673	105.930	173.636	285.011	466.608
18	19.614	21.412	23.414	25.645	28.132	30.905	33.999	37.450	41.301	45.599	50.396	55.749	61.724	68.393	75.836	84.140	128.116	218.045	371.514	630.920
19	20.811	22.840	25.117	27.671	30.539	33.760	37.379	41.446	46.018	51.158	56.939	63.439	70.748	78.968	88.211	98.603	154.739	273.556	483.968	852.741
20	22.019	24.297	26.870	29.778	33.066	36.785	40.995	45.762	51.159	57.274	64.202	72.052	80.946	91.024	102.443	115.378	186.687	342.945	630.157	1152.200
21	23.239	25.783	28.676	31.969	35.719	39.992	44.865	50.422	56.764	64.002	72.264	81.698	92.468	104.767	118.809	134.860	225.024	429.681	820.204	1556.470
22	24.471	27.299	30.536	34.248	38.505	43.392	49.005	55.456	62.872	71.402	81.213	92.502	105.489	120.434	137.630	157.414	271.028	538.101	1067.265	2102.234
23	25.716	28.845	32.452	36.618	41.430	46.995	53.435	60.893	69.531	79.542	91.147	104.602	120.203	138.295	159.274	183.600	326.234	673.626	1388.443	2839.014
24	26.973	30.421	34.426	39.082	44.501	50.815	58.176	66.764	76.789	88.496	102.173	118.154	136.829	158.656	184.166	213.976	392.480	843.032	1805.975	3833.667
25	28.243	32.030	36.459	41.645	47.726	54.864	63.248	73.105	84.699	98.346	114.412	133.333	155.616	181.867	212.790	249.212	471.976	1054.791	2348.763	5176.445
30	34.784	40.567	47.575	56.084	66.438	79.057	94.459	113.282	136.305	164.491	199.018	241.330	293.192	356.778	434.736	530.306	1181.865	3227.172	8729.805	23321.258
35	41.659	49.994	60.461	73.651	90.318	111.432	138.234	172.314	215.705	271.018	341.581	431.658	546.663	693.552	881.612	1120.699	2948.294	9856.746	32422.090	104134.500
40	48.885	60.401	75.400	95.024	120.797	154.758	199.630	259.052	337.872	442.580	581.812	767.080	1013.667	1341.979	1779.048	2360.724	7343.715	30088.621	120189.375	•
45	56.479	71.891	92.718	121.027	159.695	212.737	285.741	386.497	525.840	718.881	986.613	1358.208	1874.086	2590.464	3585.411	4965.191	18280.914	91831.312	447001.062	•
50	64.461	84.577	112.794	152.664	209.341	290.325	406.516	573.756	815.051	1163.865	1668.723	2399.975	3459.144	4994.101	7217.488	10415.469	45496.094	•	•	•

Using the calculator to compute the future value of an annuity

Before you begin, make sure to clear the memory, ensure that you are in the *end mode* and your calculator is set for *one payment per year*, and set the number of decimal places that you want (usually two for dollar-related accuracy).

SAMPLE PROBLEM You want to know what the future value will be at the end of 5 years if you place five end-of-year deposits of $1,000 in an account paying 7 percent annually. What is your account balance at the end of 5 years?

Hewlett-Packard HP 12C, 17 BII, and 19 BII+

Inputs: 1000 | 5 | 7

Functions: PMT | N | I%YR | FV

Outputs: -5750.74 [b]

Texas Instruments BA-35, BAII, BAII Plus

Inputs: 1000 | 5 | 7

Functions: PMT | N | I/Y | CPT | FV

Outputs: -5750.74 [d]

[a] For the 12C, you would use the [n] key instead of the [N] key, and the [i] key instead of the [I%YR] key.

[b] The minus sign that precedes the output should be ignored.

[c] For the Texas Instruments BAII, you would use the [2nd] key instead of the [CPT] key; for the Texas Instruments BAII Plus, you would use the [CPT] key instead of the [=] key.

[d] A minus sign precedes the output, it should be ignored.

TABLE A-3 Present Value Interest Factors for One Dollar Discounted at k Percent for n Periods: $PVIF_{k,n} = \frac{1}{(1+k)^n}$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	25%	30%	35%
1	.990	.980	.971	.962	.952	.943	.935	.926	.917	.909	.901	.893	.885	.877	.870	.862	.855	.847	.840	.833	.800	.769	.741
2	.980	.961	.943	.925	.907	.890	.873	.857	.842	.826	.812	.797	.783	.769	.756	.743	.731	.718	.706	.694	.640	.592	.549
3	.971	.942	.915	.889	.864	.840	.816	.794	.772	.751	.731	.712	.693	.675	.658	.641	.624	.609	.593	.579	.512	.455	.406
4	.961	.924	.888	.855	.823	.792	.763	.735	.708	.683	.659	.636	.613	.592	.572	.552	.534	.516	.499	.482	.410	.350	.301
5	.951	.906	.863	.822	.784	.747	.713	.681	.650	.621	.593	.567	.543	.519	.497	.476	.456	.437	.419	.402	.328	.269	.223
6	.942	.888	.837	.790	.746	.705	.666	.630	.596	.564	.535	.507	.480	.456	.432	.410	.390	.370	.352	.335	.262	.207	.165
7	.933	.871	.813	.760	.711	.665	.623	.583	.547	.513	.482	.452	.425	.400	.376	.354	.333	.314	.296	.279	.210	.159	.122
8	.923	.853	.789	.731	.677	.627	.582	.540	.502	.467	.434	.404	.376	.351	.327	.305	.285	.266	.249	.233	.168	.123	.091
9	.914	.837	.766	.703	.645	.592	.544	.500	.460	.424	.391	.361	.333	.308	.284	.263	.243	.225	.209	.194	.134	.094	.067
10	.905	.820	.744	.676	.614	.558	.508	.463	.422	.386	.352	.322	.295	.270	.247	.227	.208	.191	.176	.162	.107	.073	.050
11	.896	.804	.722	.650	.585	.527	.475	.429	.388	.350	.317	.287	.261	.237	.215	.195	.178	.162	.148	.135	.086	.056	.037
12	.887	.789	.701	.625	.557	.497	.444	.397	.356	.319	.286	.257	.231	.208	.187	.168	.152	.137	.124	.112	.069	.043	.027
13	.879	.773	.681	.601	.530	.469	.415	.368	.326	.290	.258	.229	.204	.182	.163	.145	.130	.116	.104	.093	.055	.033	.020
14	.870	.758	.661	.577	.505	.442	.388	.340	.299	.263	.232	.205	.181	.160	.141	.125	.111	.099	.088	.078	.044	.025	.015
15	.861	.743	.642	.555	.481	.417	.362	.315	.275	.239	.209	.183	.160	.140	.123	.108	.095	.084	.074	.065	.035	.020	.011
16	.853	.728	.623	.534	.458	.394	.339	.292	.252	.218	.188	.163	.141	.123	.107	.093	.081	.071	.062	.054	.028	.015	.008
17	.844	.714	.605	.513	.436	.371	.317	.270	.231	.198	.170	.146	.125	.108	.093	.080	.069	.060	.052	.045	.023	.012	.006
18	.836	.700	.587	.494	.416	.350	.296	.250	.212	.180	.153	.130	.111	.095	.081	.069	.059	.051	.044	.038	.018	.009	.005
19	.828	.686	.570	.475	.396	.331	.277	.232	.194	.164	.138	.116	.098	.083	.070	.060	.051	.043	.037	.031	.014	.007	.003
20	.820	.673	.554	.456	.377	.312	.258	.215	.178	.149	.124	.104	.087	.073	.061	.051	.043	.037	.031	.026	.012	.005	.002
21	.811	.660	.538	.439	.359	.294	.242	.199	.164	.135	.112	.093	.077	.064	.053	.044	.037	.031	.026	.022	.009	.004	.002
22	.803	.647	.522	.422	.342	.278	.226	.184	.150	.123	.101	.083	.068	.056	.046	.038	.032	.026	.022	.018	.007	.003	.001
23	.795	.634	.507	.406	.326	.262	.211	.170	.138	.112	.091	.074	.060	.049	.040	.033	.027	.022	.018	.015	.006	.002	.001
24	.788	.622	.492	.390	.310	.247	.197	.158	.126	.102	.082	.066	.053	.043	.035	.028	.023	.019	.015	.013	.005	.002	.001
25	.780	.610	.478	.375	.295	.233	.184	.146	.116	.092	.074	.059	.047	.038	.030	.024	.020	.016	.013	.010	.004	.001	.001
30	.742	.552	.412	.308	.231	.174	.131	.099	.075	.057	.044	.033	.026	.020	.015	.012	.009	.007	.005	.004	.001	•	•
35	.706	.500	.355	.253	.181	.130	.094	.068	.049	.036	.026	.019	.014	.010	.008	.006	.004	.003	.002	.002	•	•	•
40	.672	.453	.307	.208	.142	.097	.067	.046	.032	.022	.015	.011	.008	.005	.004	.003	.002	.001	.001	.001	•	•	•
45	.639	.410	.264	.171	.111	.073	.048	.031	.021	.014	.009	.006	.004	.003	.002	.001	.001	.001	•	•	•	•	•
50	.608	.372	.228	.141	.087	.054	.034	.021	.013	.009	.005	.003	.002	.001	.001	.001	•	•	•	•	•	•	•

Using the calculator to compute the present value of a single amount

Before you begin, make sure to clear the memory, ensure that you are in the *end mode* and your calculator is set for *one payment per year*, and set the number of decimal places that you want (usually two for dollar related accuracy)

SAMPLE PROBLEM You want to know the present value of $1,700 to be received at the end of 8 years, assuming an 8 percent discount rate.

Hewlett-Packard HP 12C, 17 BII, and 19 BII+

Inputs:	1700	8	8	
Functions:	FV	N	12%YR	PV
Outputs:				918.46 [b]

Texas Instruments BA-35, BAII, BAII Plus†

Inputs:	1700	8	8		
Functions:	FV	N	%I	CPT	PV
Outputs:					-918.46 [d]

[a] For the 12C, you would use the (n) key instead of the (N) key, and the (i) key instead of the (I/YR) key.

[b] The minus sign that precedes the output should be ignored

[c] For the Texas Instruments BAII, you would use the (2nd) key instead of the (SHIFT) key; for the Texas Instruments BAII Plus, you would use the (2ND) key instead of the (SHIFT) key

[d] If a minus sign precedes the output, it should be ignored

TABLE A-4 Present Value Interest Factors for a One Dollar Annuity Discounted at k Percent for n Periods: $PVIFA_{k,n} = \sum_{t=1}^{n} \frac{1}{(1+k)^t}$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	25%	30%	35%
1	.990	.980	.971	.962	.952	.943	.935	.926	.917	.909	.901	.893	.885	.877	.870	.862	.855	.847	.840	.833	.800	.769	.741
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528	1.440	1.361	1.289
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106	1.952	1.816	1.696
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589	2.362	2.166	1.997
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991	2.689	2.436	2.220
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326	2.951	2.643	2.385
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605	3.161	2.802	2.508
8	7.652	7.326	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837	3.329	2.925	2.598
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031	3.463	3.019	2.665
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192	3.570	3.092	2.715
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327	3.656	3.147	2.752
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439	3.725	3.190	2.779
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533	3.780	3.223	2.799
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611	3.824	3.249	3.814
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.560	8.061	7.606	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675	3.859	3.268	3.825
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730	3.887	3.283	2.834
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775	3.910	3.295	2.840
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812	3.928	3.304	2.844
19	17.226	15.679	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843	3.942	3.311	2.848
20	18.046	16.352	14.878	13.590	12.462	11.470	10.594	9.818	9.129	8.514	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870	3.954	3.316	2.850
21	18.857	17.011	15.415	14.029	12.821	11.764	10.836	10.017	9.292	8.649	8.075	7.562	7.102	6.687	6.312	5.973	5.665	5.384	5.127	4.891	3.963	3.320	2.852
22	19.661	17.658	15.937	14.451	13.163	12.042	11.061	10.201	9.442	8.772	8.176	7.645	7.170	6.743	6.359	6.011	5.696	5.410	5.149	4.909	3.970	3.323	2.853
23	20.456	18.292	16.444	14.857	13.489	12.303	11.272	10.371	9.580	8.883	8.266	7.718	7.230	6.792	6.399	6.044	5.723	5.432	5.167	4.925	3.976	3.325	2.854
24	21.244	18.914	16.936	15.247	13.799	12.550	11.469	10.529	9.707	8.985	8.348	7.784	7.283	6.835	6.434	6.073	5.746	5.451	5.182	4.937	3.981	3.327	2.855
25	22.023	19.524	17.413	15.622	14.094	12.783	11.654	10.675	9.823	9.077	8.422	7.843	7.330	6.873	6.464	6.097	5.766	5.467	5.195	4.948	3.985	3.329	2.856
30	25.808	22.396	19.601	17.292	15.373	13.765	12.409	11.258	10.274	9.427	8.694	8.055	7.496	7.003	6.566	6.177	5.829	5.517	5.235	4.979	3.995	3.332	2.857
35	29.409	24.999	21.487	18.665	16.374	14.498	12.948	11.655	10.567	9.644	8.855	8.176	7.586	7.070	6.617	6.215	5.858	5.539	5.251	4.992	3.998	3.333	2.857
40	32.835	27.356	23.115	19.793	17.159	15.046	13.332	11.925	10.757	9.779	8.951	8.244	7.634	7.105	6.642	6.233	5.873	5.548	5.258	4.997	3.999	3.333	2.857
45	36.095	29.490	24.519	20.720	17.774	15.456	13.606	12.108	10.881	9.863	9.008	8.283	7.661	7.123	6.654	6.242	5.877	5.552	5.261	4.999	4.000	3.333	2.857
50	39.196	31.424	25.730	21.482	18.256	15.762	13.801	12.233	10.962	9.915	9.042	8.304	7.675	7.133	6.661	6.246	5.880	5.554	5.262	4.999	4.000	3.333	2.857

Using the calculator to compute the present value of an annuity

Before you begin, make sure to clear the memory, ensure that you are in the *end mode* and your calculator is set *for one payment per year,* and set the number of decimal places that you want (usually two for dollar related accuracy).

SAMPLE PROBLEM You want to know what the present value will be of an annuity of $700 per year at the end of each year for 5 years, given a discount rate of 8 percent.

Hewlett-Packard HP 12C, 17 BII, and 19 BII*

Inputs:	700	5	8		
Functions:	PMT	n	i%YR	PV	
Outputs:				2794,90	b

Texas Instruments BA II, BA II Plus, BA Plus

Inputs:	700	5	8			
Functions:	PMT	N	I/Y	CPT	FV	
Outputs:					2794,90	d

*For the 12C, you would use the (g) key instead of the (8) key, and the (1) key instead of the (n) key.

[b] The minus sign that precedes the output should be ignored.

[c] For the Texas Instruments BAII, you would use the (2nd) key instead of the (CPT) key; for the Texas Instruments BAII Plus, you would use the (CPT) key instead of the (ENTER) key.

[d] A minus sign precedes the output, it should be ignored.