

**University of Swaziland**  
**Department of Accounting**  
**Main Exam Paper**

Degree/Diploma and Year of Study : B.Com V  
Title of Paper : Management Accounting II  
Course Code : AC 502  
Time Allowed : **2Hours.**

- Instructions:
- 1. The total number of questions on this paper are three (3).**
  - 2. Answer all the questions.**
  - 3. The marks awarded for a question / part are indicated at the end of each question / part of question.**
  - 4. Where applicable, submit all workings and calculations.**

**Note:** You are reminded that in assessing your work, account will be taken of accuracy of the language and the general quality of expression, together with the layout and presentation of your final answer.

**Special Requirement : Area Under the Normal Distribution Curve  
P V Tables and Calculator**

**This paper is not to be opened until permission has been granted by the invigilator.**

### QUESTION ONE

1. The Khumalo Manufacturers has two divisions, X and Y. One of the parts produced by division X is used in the manufacture of a product that is assembled at division Y. This part is not unique and there is a readily defined market such that X can sell outside the firm and Y can buy from outside.

The following information is descriptive of the normal expectations of division X:

Capacity to produce the part	125,000 Units
External sales at E 100 per unit	100,000 Units
Transfer to division Y	25,000 Units

Costs:

Variable manufacturing cost per unit	E 84
Variable selling costs (on external sales only but not incurred on internal transfers)	2
Fixed manufacturing cost (based on 125,000 units)	6
Fixed selling cost (based on 100,000 units)	1

The division Y presents the following data on the assumption of a volume of 25,000 units (one part is needed for each unit of its own production):

Variable manufacturing cost per unit (exclusive of transfer price or outside purchase price)	E 100
Variable selling expenses per unit	6
Fixed manufacturing cost	10
Fixed selling expenses	4
Selling price of finished product	240

**Required:**

- If division X could sell 125,000 units at E 100 each in the outside market, what transfer price would the central management prefer in order to provide proper motivation to division Y? **(8 marks)**
- As management accountant, would you advise division Y to buy at the transfer price determined in part a) **(8 marks)**
- Assume the situation and the transfer price determined in part a), if the selling price dropped to E 200, should Y buy at that price? Would this be desirable from the point of the firm? Why? **(8marks)**
- Assume that the product of Division X did not have an outside demand in excess of 100,000 units and its total fixed manufacturing cost could be reduced by 10%,

if the volume of production were reduced to 100,000 units. What is the appropriate transfer price? **(8 marks)**

- e) Suppose the unit selling price of Y's product is E 180; one of its customers is also a customer of division X; division Y refuses to buy the part from the outside market at E 100 since the selling price of E 180 would not be high enough to even cover the variable costs, if division X does not lower the transfer price, division Y will not sell to this customer who, in turn, will probably cancel the usual order of 50,000 units to division X; there is no other demand for the product and no other usage of X's capacity; fixed costs would not change at either division. What is the lowest transfer price that the division X would be well advised to accept? Support your recommendation with computations. **(8 marks)**

**Total (40 marks)**

**QUESTION TWO**

1. Discuss in brief the various floats of an Activity and Event. **(5 marks)**
2. Write in brief the application areas of PERT / CPM Techniques. **(5 marks)**
3. A small project is composed of 7 activities whose time estimates are listed in the table below. Activities are identified by their beginning ( i ) and ending ( j ) node numbers:

Activity ( i - j )	Estimated Duration (in weeks)		
	Optimistic	Most likely	Pessimistic
1 - 2	1	1	7
1 - 3	1	4	7
1 - 4	2	2	8
2 - 5	1	1	1
3 - 5	2	5	14
4 - 6	2	5	8
5 - 6	3	6	15

**Required:**

- a) Draw the project network **(5 marks)**
- b) Determine the earliest and latest expected times to reach each event and then find critical path and the expected duration and variance for each activity. **(5 marks)**
- c) What is the expected project length? Calculate variance and standard deviation of the project. **(5 marks)**
- d) What is the probability that the project will be completed 2 weeks earlier than expected time? **(5 marks)**

**Total ( 30 marks)**

**QUESTION THREE**

A company is considering a proposal to install a drying equipment. The equipment would involve a cash investment of E 600,000 and working capital of E 80,000. The expected life of the project is 6 years without any salvage value. Assume that the company is allowed to charge depreciation on straight line basis for tax purposes and that the tax rate is 30 percent.

The estimated before tax cash-flows are given below.

Before tax cash-flows						
Year	1	2	3	4	5	6
	E 210,000	180,000	160,000	150,000	120,000	100,000

The company's opportunity cost of capital is 12% ,

**Required:**

- a) Calculate the net cash flows for the project. **(9 marks)**
- b) Test the viability of the project using NPV and IRR . **(21 marks)**

**Total ( 30 marks)**

**END OF QUESTION PAPER**

Exhibit F-6 The Standard Normal Distribution

<i>z</i>	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990

From John E. Freund, *Modern Elementary Statistics*, 4th ed. (Englewood Cliffs, N.J.: Prentice Hall, 1973). By permission of the publisher.

## Present Value of an Annuity of \$1

Periods (n)	Interest rate (r)											
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.7125	1.6901
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4437	2.4018
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.1024	3.0373
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6959	3.6048
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.2305	4.1114
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.7122	4.5638
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	5.1461	4.9676
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.5370	5.3282
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.8892	5.6502
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	6.2065	5.9377
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.4924	6.1944
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.7499	6.4235
14	13.0037	12.1062	11.2961	10.5651	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.9819	6.6282
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	7.1909	6.8109
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	7.3792	6.9740
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.5488	7.1196
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.7016	7.2497
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.8393	7.3658
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.9633	7.4694
21	18.8570	17.0112	15.4150	14.0292	12.8212	11.7641	10.8355	10.0168	9.2922	8.6487	8.0751	7.5620
22	19.6604	17.6580	15.9369	14.4511	13.1630	12.0416	11.0612	10.2007	9.4424	8.7715	8.1757	7.6446
23	20.4558	18.2922	16.4436	14.8568	13.4886	12.3034	11.2722	10.3711	9.5802	8.8832	8.2664	7.7184
24	21.2434	18.9139	16.9355	15.2470	13.7986	12.5504	11.4693	10.5288	9.7066	8.9847	8.3481	7.7843
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	8.4217	7.8431
26	22.7952	20.1210	17.8768	15.9828	14.3752	13.0032	11.8258	10.8100	9.9290	9.1609	8.4881	7.8957
27	23.5596	20.7069	18.3270	16.3296	14.6430	13.2105	11.9867	10.9352	10.0266	9.2372	8.5478	7.9426
28	24.3164	21.2813	18.7641	16.6631	14.8981	13.4062	12.1371	11.0511	10.1161	9.3066	8.6016	7.9844
29	25.0658	21.8444	19.1885	16.9837	15.1411	13.5907	12.2777	11.1584	10.1983	9.3696	8.6501	8.0218
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.6938	8.0552
31	26.5423	22.9377	20.0004	17.5885	15.5928	13.9291	12.5318	11.3498	10.3428	9.4790	8.7331	8.0850
32	27.2696	23.4683	20.3888	17.8736	15.8027	14.0840	12.6466	11.4350	10.4062	9.5264	8.7686	8.1116
33	27.9897	23.9886	20.7658	18.1476	16.0025	14.2302	12.7538	11.5139	10.4644	9.5694	8.8005	8.1354
34	28.7027	24.4986	21.1318	18.4112	16.1929	14.3681	12.8540	11.5869	10.5178	9.6086	8.8293	8.1566
35	29.4086	24.9986	21.4872	18.6646	16.3742	14.4982	12.9477	11.6546	10.5668	9.6442	8.8552	8.1755
36	30.1075	25.4888	21.8323	18.9083	16.5469	14.6210	13.0352	11.7172	10.6118	9.6765	8.8786	8.1924
37	30.7995	25.9695	22.1672	19.1426	16.7113	14.7368	13.1170	11.7752	10.6530	9.7059	8.8996	8.2075
38	31.4847	26.4406	22.4925	19.3679	16.8679	14.8460	13.1935	11.8289	10.6908	9.7327	8.9186	8.2210
39	32.1630	26.9026	22.8082	19.5845	17.0170	14.9491	13.2649	11.8786	10.7255	9.7570	8.9357	8.2330
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.9511	8.2438

## Present Value of an Annuity of \$1

Periods (n)	Interest rate (r)											
	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%
1	0.8850	0.8772	0.8696	0.8621	0.8547	0.8475	0.8403	0.8333	0.8264	0.8197	0.8130	0.8065
2	1.6681	1.6467	1.6257	1.6052	1.5852	1.5656	1.5465	1.5278	1.5095	1.4915	1.4740	1.4568
3	2.3612	2.3216	2.2832	2.2459	2.2096	2.1743	2.1399	2.1065	2.0739	2.0422	2.0114	1.9813
4	2.9745	2.9137	2.8550	2.7982	2.7432	2.6901	2.6386	2.5887	2.5404	2.4936	2.4483	2.4043
5	3.5172	3.4331	3.3522	3.2743	3.1993	3.1272	3.0576	2.9906	2.9260	2.8636	2.8035	2.7454
6	3.9975	3.8887	3.7845	3.6847	3.5892	3.4976	3.4098	3.3255	3.2446	3.1669	3.0923	3.0205
7	4.4226	4.2883	4.1604	4.0386	3.9224	3.8115	3.7057	3.6046	3.5079	3.4155	3.3270	3.2423
8	4.7988	4.6389	4.4873	4.3436	4.2072	4.0776	3.9544	3.8372	3.7256	3.6193	3.5179	3.4212
9	5.1317	4.9464	4.7716	4.6065	4.4506	4.3030	4.1633	4.0310	3.9054	3.7863	3.6731	3.5655
10	5.4262	5.2161	5.0188	4.8332	4.6586	4.4941	4.3389	4.1925	4.0541	3.9232	3.7993	3.6819
11	5.6869	5.4527	5.2337	5.0286	4.8364	4.6560	4.4865	4.3271	4.1769	4.0354	3.9018	3.7757
12	5.9176	5.6603	5.4206	5.1971	4.9884	4.7932	4.6105	4.4392	4.2784	4.1274	3.9852	3.8514
13	6.1218	5.8424	5.5831	5.3423	5.1183	4.9095	4.7147	4.5327	4.3624	4.2028	4.0530	3.9124
14	6.3025	6.0021	5.7245	5.4675	5.2293	5.0081	4.8023	4.6106	4.4317	4.2646	4.1082	3.9616
15	6.4624	6.1422	5.8474	5.5755	5.3242	5.0916	4.8759	4.6755	4.4890	4.3152	4.1530	4.0013
16	6.6039	6.2651	5.9542	5.6685	5.4053	5.1624	4.9377	4.7296	4.5364	4.3567	4.1894	4.0333
17	6.7291	6.3729	6.0472	5.7487	5.4746	5.2223	4.9897	4.7746	4.5755	4.3908	4.2190	4.0591
18	6.8399	6.4674	6.1280	5.8178	5.5339	5.2732	5.0333	4.8122	4.6079	4.4187	4.2431	4.0799
19	6.9380	6.5504	6.1982	5.8775	5.5845	5.3162	5.0700	4.8435	4.6346	4.4415	4.2627	4.0967
20	7.0248	6.6231	6.2593	5.9288	5.6278	5.3527	5.1009	4.8696	4.6567	4.4603	4.2786	4.1103
21	7.1016	6.6870	6.3125	5.9731	5.6648	5.3837	5.1268	4.8913	4.6750	4.4756	4.2916	4.1212
22	7.1695	6.7429	6.3587	6.0113	5.6964	5.4099	5.1486	4.9094	4.6900	4.4882	4.3021	4.1300
23	7.2297	6.7921	6.3988	6.0442	5.7234	5.4321	5.1668	4.9245	4.7025	4.4985	4.3106	4.1371
24	7.2829	6.8351	6.4338	6.0726	5.7465	5.4509	5.1822	4.9371	4.7128	4.5070	4.3176	4.1428
25	7.3300	6.8729	6.4641	6.0971	5.7662	5.4669	5.1951	4.9476	4.7213	4.5139	4.3232	4.1474
26	7.3717	6.9061	6.4906	6.1182	5.7831	5.4804	5.2060	4.9563	4.7284	4.5196	4.3278	4.1511
27	7.4086	6.9352	6.5135	6.1364	5.7975	5.4919	5.2151	4.9636	4.7342	4.5243	4.3316	4.1542
28	7.4412	6.9607	6.5335	6.1520	5.8099	5.5016	5.2228	4.9697	4.7390	4.5281	4.3346	4.1566
29	7.4701	6.9830	6.5509	6.1656	5.8204	5.5098	5.2292	4.9747	4.7430	4.5312	4.3371	4.1585
30	7.4957	7.0027	6.5660	6.1772	5.8294	5.5168	5.2347	4.9789	4.7463	4.5338	4.3391	4.1601
31	7.5183	7.0199	6.5791	6.1872	5.8371	5.5227	5.2392	4.9824	4.7490	4.5359	4.3407	4.1614
32	7.5383	7.0350	6.5905	6.1959	5.8437	5.5277	5.2430	4.9854	4.7512	4.5376	4.3421	4.1624
33	7.5560	7.0482	6.6005	6.2034	5.8493	5.5320	5.2462	4.9878	4.7531	4.5390	4.3431	4.1632
34	7.5717	7.0599	6.6091	6.2098	5.8541	5.5356	5.2489	4.9898	4.7546	4.5402	4.3440	4.1639
35	7.5856	7.0700	6.6166	6.2153	5.8582	5.5386	5.2512	4.9915	4.7559	4.5411	4.3447	4.1644
36	7.5979	7.0790	6.6231	6.2201	5.8617	5.5412	5.2531	4.9929	4.7569	4.5419	4.3453	4.1649
37	7.6087	7.0868	6.6288	6.2242	5.8647	5.5434	5.2547	4.9941	4.7578	4.5426	4.3458	4.1652
38	7.6183	7.0937	6.6338	6.2278	5.8673	5.5452	5.2561	4.9951	4.7585	4.5431	4.3462	4.1655
39	7.6268	7.0997	6.6380	6.2309	5.8695	5.5468	5.2572	4.9959	4.7591	4.5435	4.3465	4.1657
40	7.6344	7.1050	6.6418	6.2335	5.8713	5.5482	5.2582	4.9966	4.7596	4.5439	4.3467	4.1659

Periods (n)	Present Value of \$1											
	Interest rate (r)											
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929
2	0.9803	0.9612	0.9426	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264	0.8116	0.7972
3	0.9706	0.9423	0.9151	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513	0.7312	0.7118
4	0.9610	0.9238	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6587	0.6355
5	0.9515	0.9057	0.8626	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5935	0.5674
6	0.9420	0.8880	0.8375	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645	0.5346	0.5066
7	0.9327	0.8706	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4817	0.4523
8	0.9235	0.8535	0.7894	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4339	0.4039
9	0.9143	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3909	0.3606
10	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855	0.3522	0.3220
11	0.8963	0.8043	0.7224	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3505	0.3173	0.2875
12	0.8874	0.7885	0.7014	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	0.2858	0.2567
13	0.8787	0.7730	0.6810	0.6006	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2575	0.2292
14	0.8700	0.7579	0.6611	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992	0.2633	0.2320	0.2046
15	0.8613	0.7430	0.6419	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.2090	0.1827
16	0.8528	0.7284	0.6232	0.5339	0.4581	0.3936	0.3387	0.2919	0.2519	0.2176	0.1883	0.1631
17	0.8444	0.7142	0.6050	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1696	0.1456
18	0.8360	0.7002	0.5874	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120	0.1799	0.1528	0.1300
19	0.8277	0.6864	0.5703	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945	0.1635	0.1377	0.1161
20	0.8195	0.6730	0.5537	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784	0.1486	0.1240	0.1037
21	0.8114	0.6598	0.5375	0.4388	0.3589	0.2942	0.2415	0.1987	0.1637	0.1351	0.1117	0.0926
22	0.8034	0.6468	0.5219	0.4220	0.3418	0.2775	0.2257	0.1839	0.1502	0.1228	0.1007	0.0826
23	0.7954	0.6342	0.5067	0.4057	0.3256	0.2618	0.2109	0.1703	0.1378	0.1117	0.0907	0.0738
24	0.7876	0.6217	0.4919	0.3901	0.3101	0.2470	0.1971	0.1577	0.1264	0.1015	0.0817	0.0659
25	0.7798	0.6095	0.4776	0.3751	0.2953	0.2330	0.1842	0.1460	0.1160	0.0923	0.0736	0.0588
26	0.7720	0.5976	0.4637	0.3607	0.2812	0.2198	0.1722	0.1352	0.1064	0.0839	0.0663	0.0525
27	0.7644	0.5859	0.4502	0.3468	0.2678	0.2074	0.1609	0.1252	0.0976	0.0763	0.0597	0.0469
28	0.7568	0.5744	0.4371	0.3335	0.2551	0.1956	0.1504	0.1159	0.0895	0.0693	0.0538	0.0419
29	0.7493	0.5631	0.4243	0.3207	0.2429	0.1846	0.1406	0.1073	0.0822	0.0630	0.0485	0.0374
30	0.7419	0.5521	0.4120	0.3083	0.2314	0.1741	0.1314	0.0994	0.0754	0.0573	0.0437	0.0334
31	0.7346	0.5412	0.4000	0.2965	0.2204	0.1643	0.1228	0.0920	0.0691	0.0521	0.0394	0.0298
32	0.7273	0.5306	0.3883	0.2851	0.2099	0.1550	0.1147	0.0852	0.0634	0.0474	0.0355	0.0266
33	0.7201	0.5202	0.3770	0.2741	0.1999	0.1462	0.1072	0.0789	0.0582	0.0431	0.0319	0.0238
34	0.7130	0.5100	0.3660	0.2636	0.1904	0.1379	0.1002	0.0730	0.0534	0.0391	0.0288	0.0212
35	0.7059	0.5000	0.3554	0.2534	0.1813	0.1301	0.0937	0.0676	0.0490	0.0356	0.0259	0.0189
36	0.6989	0.4902	0.3450	0.2437	0.1727	0.1227	0.0875	0.0626	0.0449	0.0323	0.0234	0.0169
37	0.6920	0.4806	0.3350	0.2343	0.1644	0.1158	0.0818	0.0580	0.0412	0.0294	0.0210	0.0151
38	0.6852	0.4712	0.3252	0.2253	0.1566	0.1092	0.0765	0.0537	0.0378	0.0267	0.0190	0.0135
39	0.6784	0.4619	0.3158	0.2166	0.1491	0.1031	0.0715	0.0497	0.0347	0.0243	0.0171	0.0120
40	0.6717	0.4529	0.3066	0.2083	0.1420	0.0972	0.0668	0.0460	0.0318	0.0221	0.0154	0.0107

Periods (n)	Present Value of \$1											
	Interest rate (r)											
	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%
1	0.8850	0.8772	0.8696	0.8621	0.8547	0.8475	0.8403	0.8333	0.8264	0.8197	0.8130	0.8065
2	0.7831	0.7695	0.7561	0.7432	0.7305	0.7182	0.7062	0.6944	0.6830	0.6719	0.6610	0.6504
3	0.6931	0.6750	0.6575	0.6407	0.6244	0.6086	0.5934	0.5787	0.5645	0.5507	0.5374	0.5245
4	0.6133	0.5921	0.5718	0.5523	0.5337	0.5158	0.4987	0.4823	0.4665	0.4514	0.4369	0.4230
5	0.5428	0.5194	0.4972	0.4761	0.4561	0.4371	0.4190	0.4019	0.3855	0.3700	0.3552	0.3411
6	0.4803	0.4556	0.4323	0.4104	0.3898	0.3704	0.3521	0.3349	0.3186	0.3033	0.2888	0.2751
7	0.4251	0.3996	0.3759	0.3538	0.3332	0.3139	0.2959	0.2791	0.2633	0.2486	0.2348	0.2218
8	0.3762	0.3506	0.3269	0.3050	0.2848	0.2660	0.2487	0.2326	0.2176	0.2038	0.1909	0.1789
9	0.3329	0.3075	0.2843	0.2630	0.2434	0.2255	0.2090	0.1938	0.1799	0.1670	0.1552	0.1443
10	0.2946	0.2697	0.2472	0.2267	0.2080	0.1911	0.1756	0.1615	0.1486	0.1369	0.1262	0.1164
11	0.2607	0.2366	0.2149	0.1954	0.1778	0.1619	0.1476	0.1346	0.1228	0.1122	0.1026	0.0938
12	0.2307	0.2076	0.1869	0.1685	0.1520	0.1372	0.1240	0.1122	0.1015	0.0920	0.0834	0.0757
13	0.2042	0.1821	0.1625	0.1452	0.1299	0.1163	0.1042	0.0935	0.0839	0.0754	0.0678	0.0610
14	0.1807	0.1597	0.1413	0.1252	0.1110	0.0985	0.0876	0.0779	0.0693	0.0618	0.0551	0.0492
15	0.1599	0.1401	0.1229	0.1079	0.0949	0.0835	0.0736	0.0649	0.0573	0.0507	0.0448	0.0397
16	0.1415	0.1229	0.1069	0.0930	0.0811	0.0708	0.0618	0.0541	0.0474	0.0415	0.0364	0.0320
17	0.1252	0.1078	0.0929	0.0802	0.0693	0.0600	0.0520	0.0451	0.0391	0.0340	0.0296	0.0258
18	0.1108	0.0946	0.0808	0.0691	0.0592	0.0508	0.0437	0.0376	0.0323	0.0279	0.0241	0.0208
19	0.0981	0.0829	0.0703	0.0596	0.0506	0.0431	0.0367	0.0313	0.0267	0.0229	0.0196	0.0168
20	0.0868	0.0728	0.0611	0.0514	0.0433	0.0365	0.0308	0.0261	0.0221	0.0187	0.0159	0.0135
21	0.0768	0.0638	0.0531	0.0443	0.0370	0.0309	0.0259	0.0217	0.0183	0.0154	0.0129	0.0109
22	0.0680	0.0560	0.0462	0.0382	0.0316	0.0262	0.0218	0.0181	0.0151	0.0126	0.0105	0.0088
23	0.0601	0.0491	0.0402	0.0329	0.0270	0.0222	0.0183	0.0151	0.0125	0.0103	0.0086	0.0071
24	0.0532	0.0431	0.0349	0.0284	0.0231	0.0188	0.0154	0.0126	0.0103	0.0085	0.0070	0.0057
25	0.0471	0.0378	0.0304	0.0245	0.0197	0.0160	0.0129	0.0105	0.0085	0.0069	0.0057	0.0046
26	0.0417	0.0331	0.0264	0.0211	0.0169	0.0135	0.0109	0.0087	0.0070	0.0057	0.0046	0.0037
27	0.0369	0.0291	0.0230	0.0182	0.0144	0.0115	0.0091	0.0073	0.0058	0.0047	0.0037	0.0030
28	0.0326	0.0255	0.0200	0.0157	0.0123	0.0097	0.0077	0.0061	0.0048	0.0038	0.0030	0.0024
29	0.0289	0.0224	0.0174	0.0135	0.0105	0.0082	0.0064	0.0051	0.0040	0.0031	0.0025	0.0020
30	0.0256	0.0196	0.0151	0.0116	0.0090	0.0070	0.0054	0.0042	0.0033	0.0026	0.0020	0.0016
31	0.0226	0.0172	0.0131	0.0100	0.0070	0.0059	0.0046	0.0035	0.0027	0.0021	0.0016	0.0013
32	0.0200	0.0151	0.0114	0.0087	0.0066	0.0050	0.0038	0.0029	0.0022	0.0017	0.0013	0.0010
33	0.0177	0.0132	0.0099	0.0075	0.0056	0.0042	0.0032	0.0024	0.0019	0.0014	0.0011	0.0008
34	0.0157	0.0116	0.0086	0.0064	0.0048	0.0036	0.0027	0.0020	0.0015	0.0012	0.0009	0.0007
35	0.0139	0.0102	0.0075	0.0055	0.0041	0.0030	0.0023	0.0017	0.0013	0.0009	0.0007	0.0005
36	0.0123	0.0089	0.0065	0.0048	0.0035	0.0026	0.0019	0.0014	0.0010	0.0008	0.0006	0.0004
37	0.0109	0.0078	0.0057	0.0041	0.0030	0.0022	0.0016	0.0012	0.0009	0.0006	0.0005	0.0003
38	0.0096	0.0069	0.0049	0.0036	0.0026	0.0019	0.0013	0.0010	0.0007	0.0005	0.0004	0.0003
39	0.0085	0.0060	0.0043	0.0031	0.0022	0.0016	0.0011	0.0008	0.0006	0.0004	0.0003	0.0002
40	0.0075	0.0053	0.0037	0.0026	0.0019	0.0013	0.0010	0.0007	0.0005	0.0004	0.0003	0.0002