

SULIT



**BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENDIDIKAN MALAYSIA**

JABATAN PERDAGANGAN

**PEPERIKSAAN AKHIR
SESI DISEMBER 2018**

DPB2033: BUSINESS MATHEMATICS

**TARIKH : 21 APRIL 2019
MASA : 8.30 PAGI - 10.30 PAGI (2 JAM)**

Kertas ini mengandungi **LAPAN (8)** halaman bercetak.
Struktur (4 soalan)

Dokumen sokongan yang disertakan : Formula, Jadual PVIF dan PVIFA

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

INSTRUCTION:

This section consists of **FOUR (4)** structured questions. Answer **ALL** questions.

ARAHAN:

Bahagian ini mengandungi EMPAT (4) soalan struktur. Jawab SEMUA soalan.

QUESTION 1**SOALAN 1**

CLO1
C1

- a) Find the derivatives of the following functions below.

Cari pembezaan bagi persamaan-persamaan berikut.

i. $g(x) = x^3(4x - 8)$

[5 marks]
[5 markah]

ii. $y(x) = (9 - 3x)^4$

[5 marks]
[5 markah]

iii. $p(x) = \frac{x^2 + 1}{x}$

[5 marks]
[5 markah]

CLO1
C2

- b) Given $p(x) = 5x + 100$ as a demand function. Where, p is the price per unit and x is the quantity demanded. Calculate the:

Diberi $p(x) = 5x + 100$ sebagai persamaan permintaan. Dimana, p adalah harga per unit dan x adalah kuantiti yang diminta. Kirakan:

- i. revenue function
fungsi hasil.

[2 marks]
[2 markah]

- ii. marginal revenue function
fungsi hasil marginal

[1 mark]
[1 markah]

- iii. average revenue function

fungsi hasil purata

[2 marks]

[2 markah]

- iv. If the total cost $C(x)$ of producing x units of the items is given by $C(x) = 500 + 20x$ where x is the level of output, determine the profit function.

Sekiranya jumlah kos $C(x)$ untuk mengeluarkan x unit barang diberi sebagai $C(x) = 500 + 20x$ yang mana x adalah tingkat output, tentukan fungsi keuntungan berkenaan.

[2 marks]

[2 markah]

- v. The total profit if 100 units are sold.

Jumlah keuntungan jika 100 unit dijual.

[3 marks]

[3 markah]

QUESTION 2

SOALAN 2

CLO1
C1

- a) The Total Present Value (TPV) for Project Q is RM171 994.40 with discount rate at 18%. The initial investment was RM160 000.

Jumlah Nilai Kini (NKB) bagi Projek Q adalah RM171 994.40 dengan kadar diskaun 18%. Nilai pelaburan adalah RM160 000.

- i. Find the profitability index (PI) for Project Q

Cari indeks keuntungan (IK) Projek Q

[3 marks]

[3 markah]

- ii. Identify whether the project is profitable to be proceeded, then give your reason.

Tentukan samada projek berkenaan menguntungkan untuk diteruskan, beri alasan anda.

[2 marks]

[2 markah]

CLO1
C2

- b) Good Sense Sdn Bhd intends to purchase a new machinery to increase production. Both machines require the same initial investment and have same life period. The following is cash flow after tax (in RM) for both machines.

Syarikat Good Sense Sdn Bhd berhasrat membeli sebuah mesin baru untuk meningkatkan pengeluaran. Kedua-dua mesin berkenaan memerlukan pelaburan permulaan yang sama dan mempunyai jangka hayat yang sama. Berikut merupakan aliran tunai selepas cukai (RM) bagi kedua-dua mesin.

Year <i>Tahun</i>	Machine O <i>Mesin O</i>	Machine K <i>Mesin K</i>
0	(71 000)	(71 000)
1	30 000	-
2	30 000	15 000
3	30 000	30 000
4	30 000	30 000
5	30 000	98 000

With the capital cost of 10%, you are required to calculate the following item for both machines:

Dengan kos modal sebanyak 10%, anda dikehendaki mengira item berikut untuk kedua-dua mesin:

- i. Payback period (PBP)

Tempoh Bayaran Balik (TBB)

[5 marks]

[5 markah]

- ii. Average Rate of Return (ARR)

Kadar Pulangan Purata (KPP)

[5 marks]

[5 markah]

- iii. Net Present Value (NPV)

Nilai Kini Bersih (NKB)

[5 marks]

[5 markah]

- iv. Profitability Index (PI)

Indeks Keuntungan (IK)

[5 marks]

[5 markah]

QUESTION 3

SOALAN 3

CLO2
C2

- a) On 4th May, RM5 000 was saved at 8% per annum on simple interest.
Determine the interest earned on 15 July of the same year, using:

Pada 4 Mei, RM5 000 telah disimpan pada kadar faedah mudah 8% setahun. Hitung faedah yang diperolehi pada 15 Julai tahun yang sama, menggunakan:

- i. Exact time

Masa sebenar

[3 marks]

[3 markah]

- ii. Banker's rule

Banker's rule

[2 marks]

[2 markah]

CLO2
C3

- b) Danial is considering on buying a car for the price of RM55 000. He has to pay 10% as a down payment and remaining will be borrowed from a bank that charges an interest rate of 3.4% per year. The duration of loan is 5 years. Calculate:

Danial bercadang untuk membeli sebuah kereta berharga RM55000. Dia perlu membayar 10% sebagai wang pendahuluan dan bakinya akan dipinjam daripada bank yang mengenakan kadar faedah sebanyak 3.4% setahun. Tempoh pinjaman adalah selama 5 tahun. Kirakan:

- i. Value of down payment

Nilai bayaran pendahuluan

[2 marks]

[2 markah]

- ii. Loan amount

Jumlah pinjaman

[2 marks]

[2 markah]

- iii. Total interest charged

Jumlah faedah yang dikenakan

[2 marks]

[2 markah]

- iv. Installment price

Harga ansuran

[3 marks]

[3 markah]

- v. Monthly payment.

Bayaran bulanan

[4 marks]

[4 markah]

- vi. If Danial decided to pay all his debt after 40th payment, how much amount should he pay for an early settlement?

Sekiranya Danial ingin membayar semua hutangnya selepas bayaran ke-40, berapakah amaun yang perlu dibayar untuk penyelesaian awal?

[7 marks]

[7 markah]

QUESTION 4

SOALAN 4

Neveno Limited owns 3 factories F1, F2 and F3. The products are to be sent to warehouses W1, W2 and W3. Total productions from the factories are as stated below:

Neveno Limited memiliki 3 buah kilang F1, F2 dan F3. Pengeluarannya akan dihantar ke gudang-gudang W1, W2 dan W3. Jumlah pengeluaran daripada kilang-kilang tersebut adalah seperti berikut:

Factories <i>Kilang</i>	Total Production (unit) <i>Jumlah Pengeluaran (unit)</i>
F1	72
F2	68
F3	60

Warehouse <i>Gudang</i>	Total Demand (unit) <i>Jumlah Permintaan (unit)</i>
W1	30
W2	70
W3	100

Transportation cost per unit (in RM) are given as below:

Kos pengangkutan per unit (dalam RM) adalah seperti berikut:

Warehouse/ <i>Gudang</i> Factories/ <i>Kilang</i>	W1	W2	W3
F1	5	9	8
F2	16	20	16
F3	18	16	24

CLO2
C2

- a) Illustrate the initial transportation table.
Ilustrasikan jadual permulaan pengangkutan tersebut.

[5 marks]
[5 markah]

CLO2
C3

- b) Transportation model is used to solve transportation problems. Using the initial transportation table as in a), calculate :
Model pengangkutan digunakan untuk menyelesaikan masalah pengangkutan. Dengan menggunakan jadual permulaan pengangkutan seperti di a), kirakan:

- i. the transportation cost using Northwest Corner Rule.
kos pengangkutan dengan menggunakan Northwest Corner Rule

[10 marks]
[10 markah]

- ii. the transportation cost using Least Cost method.
kos pengangkutan dengan menggunakan kaedah Kos Terendah.

[10 marks]
[10 markah]

SOALAN TAMAT

7

FORMULA BUSINESS MATHEMATIC

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$P = pQ - VCQ - FC$$

$$P = TR - TC$$

$$TC = VCQ + FC$$

$$TR = pQ$$

$$TVC = VCQ$$

$$BEP(Q) = \frac{FC}{p - VC}$$

$$BEP(RM) = BEP(Q) \times p$$

$$CM = p - VC$$

$$CMR = \frac{p - VC}{p} \times 100$$

$$\frac{dy}{dx} = nx^{n-1}$$

$$\frac{dy}{dx} = nx^{n-1} + 0$$

$$\frac{dy}{dx} = anx^{n-1}$$

$$\frac{dy}{dx} = anx^{n-1} + bmx^{m-1}$$

$$\frac{dy}{dx} = u \frac{dv}{dx} + v \frac{du}{dx}$$

$$\frac{dy}{dx} = \frac{v \frac{du}{dx} - u \frac{dv}{dx}}{v^2}$$

$$\frac{dy}{dx} = \frac{dy}{du} \times \frac{du}{dx}$$

$$I = Prt$$

$$I = IP - CP$$

$$I = \left(\frac{Pr + Yr}{2} \right) t \quad \text{or} \quad I = Pr \left(\frac{t+1}{2} \right)$$

$$Y = \frac{P}{t}$$

$$DP = \text{Rate (\%)} \times CP$$

$$P = CP - DP + \text{other payments}$$

$$S = P + I$$

$$S = P(1 + rt)$$

$$D = Sdt$$

$$H = S - D$$

$$MP = \frac{S}{n}$$

$$IP = DP + (MP \times n) @ DP + S @ DP + P + I$$

$$R = \frac{\sum n}{\sum N} \times I \quad \text{and} \quad \sum n = \left(\frac{n+1}{2} \right) n, \quad \sum N = \left(\frac{N+1}{2} \right) N$$

$$EP = (n \times MP) - R$$

$$S = P \left(1 + \frac{i}{m} \right)^{n.m}$$

$$P = \frac{S}{\left(1 + \frac{i}{m} \right)^{n.m}}$$

$$P = R \left(\frac{1 - \left(1 + \frac{i}{m} \right)^{-n.m}}{\frac{i}{m}} \right) \quad \text{and} \quad R = \frac{P \left(\frac{i}{m} \right)}{1 - \left(1 + \frac{i}{m} \right)^{-n.m}}$$

$$S = R \left(\frac{\left(1 + \frac{i}{m} \right)^{n.m} - 1}{\frac{i}{m}} \right) \quad \text{and} \quad R = \frac{S \left(\frac{i}{m} \right)}{\left(1 + \frac{i}{m} \right)^{n.m} - 1}$$

$$PP = \frac{IO}{ACF}$$

$$PP = T + \frac{IO - \sum ACF_T}{ACF_{T+1}}$$

$$ARR = \frac{\text{Average ACF} - \text{Dep.}}{IO} \times 100$$

$$NPV = ACF(PVIFA, k\%, n) - IO$$

$$PI = \frac{PV}{IO}$$

Present Value and Future Value Tables

Table A-3 Present value interest factors One-Dollar Discounted at k percent for n periods: $PVIF_{k,n} = 1/(1+k)^n$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	24%	25%	30%
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	0.8850	0.8772	0.8696	0.8621	0.8547	0.8475	0.8403	0.8333	0.8065	0.8000	0.7692
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	0.7831	0.7695	0.7561	0.7432	0.7305	0.7182	0.7062	0.6944	0.6504	0.6400	0.5917
3	0.9706	0.9423	0.9151	0.8890	0.8638	0.8398	0.8163	0.7938	0.7722	0.7513	0.7312	0.7118	0.6931	0.6758	0.6595	0.6437	0.6284	0.6135	0.5994	0.5787	0.5245	0.5120	0.4552
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	0.6133	0.5921	0.5718	0.5523	0.5337	0.5158	0.4987	0.4823	0.4230	0.4096	0.3501
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	0.5428	0.5194	0.4972	0.4761	0.4561	0.4371	0.4190	0.4019	0.3411	0.3277	0.2693
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	0.4803	0.4556	0.4323	0.4104	0.3898	0.3704	0.3521	0.3349	0.2751	0.2621	0.2072
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	0.4251	0.3996	0.3759	0.3538	0.3332	0.3139	0.2959	0.2791	0.2218	0.2097	0.1594
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	0.3762	0.3506	0.3268	0.3050	0.2848	0.2660	0.2487	0.2326	0.1769	0.1678	0.1226
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	0.3329	0.3075	0.2843	0.2630	0.2434	0.2255	0.2090	0.1938	0.1443	0.1342	0.0843
10	0.9053	0.8203	0.7441	0.6756	0.6139	0.5594	0.5093	0.4632	0.4224	0.3855	0.3522	0.3220	0.2946	0.2697	0.2472	0.2267	0.2080	0.1911	0.1756	0.1615	0.1164	0.1074	0.0725
11	0.8963	0.8043	0.7224	0.6496	0.5847	0.5258	0.4751	0.4289	0.3875	0.3505	0.3173	0.2875	0.2607	0.2366	0.2149	0.1954	0.1778	0.1619	0.1475	0.1346	0.0938	0.0859	0.0558
12	0.8874	0.7885	0.7014	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	0.2868	0.2577	0.2307	0.2076	0.1869	0.1685	0.1520	0.1372	0.1240	0.1122	0.0757	0.0687	0.0429
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	0.2042	0.1821	0.1625	0.1452	0.1299	0.1163	0.1042	0.0935	0.0610	0.0550	0.0330
14	0.8700	0.7579	0.6611	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992	0.2633	0.2310	0.2026	0.1787	0.1567	0.1373	0.1232	0.1110	0.0995	0.0896	0.0779	0.0492	0.0440	0.0254
15	0.8613	0.7430	0.6419	0.5553	0.4870	0.4173	0.3624	0.3162	0.2745	0.2384	0.2060	0.1787	0.1558	0.1340	0.1153	0.1019	0.0919	0.0835	0.0736	0.0649	0.0397	0.0352	0.0195
16	0.8526	0.7284	0.6232	0.5338	0.4611	0.3936	0.3387	0.2919	0.2519	0.2176	0.1863	0.1631	0.1415	0.1229	0.1069	0.0930	0.0811	0.0708	0.0618	0.0541	0.0320	0.0281	0.0150
17	0.8444	0.7142	0.6050	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1696	0.1458	0.1252	0.1078	0.0929	0.0802	0.0693	0.0600	0.0520	0.0451	0.0258	0.0225	0.0116
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	0.1108	0.0946	0.0808	0.0681	0.0592	0.0508	0.0437	0.0376	0.0206	0.0180	0.0089
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	0.0981	0.0823	0.0703	0.0596	0.0506	0.0431	0.0367	0.0313	0.0168	0.0144	0.0068
20	0.8195	0.6730	0.5537	0.4554	0.3759	0.3118	0.2584	0.2145	0.1784	0.1486	0.1240	0.1037	0.0868	0.0728	0.0611	0.0514	0.0433	0.0365	0.0308	0.0251	0.0135	0.0115	0.0053
21	0.8114	0.6598	0.5375	0.4368	0.3569	0.2942	0.2415	0.1987	0.1637	0.1351	0.1117	0.0928	0.0768	0.0638	0.0531	0.0443	0.0370	0.0309	0.0259	0.0217	0.0109	0.0092	0.0040
22	0.8034	0.6468	0.5219	0.4220	0.3418	0.2775	0.2257	0.1835	0.1502	0.1223	0.1007	0.0826	0.0680	0.0560	0.0462	0.0382	0.0316	0.0262	0.0218	0.0181	0.0088	0.0074	0.0031
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	0.0601	0.0491	0.0402	0.0329	0.0270	0.0222	0.0183	0.0151	0.0071	0.0059	0.0024
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	0.0532	0.0431	0.0349	0.0284	0.0231	0.0188	0.0154	0.0128	0.0057	0.0047	0.0018
25	0.7798	0.6095	0.4776	0.3751	0.2953	0.2320	0.1842	0.1460	0.1160	0.0923	0.0735	0.0588	0.0471	0.0378	0.0304	0.0245	0.0197	0.0160	0.0129	0.0105	0.0046	0.0038	0.0014
30	0.7419	0.5521	0.4120	0.3083	0.2314	0.1741	0.1314	0.0994	0.0754	0.0579	0.0437	0.0334	0.0255	0.0198	0.0151	0.0116	0.0090	0.0070	0.0054	0.0042	0.0016	0.0012	-
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	0.0139	0.0102	0.0075	0.0055	0.0041	0.0030	0.0023	0.0017	0.0005	-	-
40	0.6717	0.4529	0.3065	0.2063	0.1420	0.0972	0.0686	0.0460	0.0318	0.0221	0.0154	0.0107	0.0075	0.0053	0.0037	0.0026	0.0019	0.0013	0.0010	0.0007	-	-	-
50	0.6080	0.3715	0.2281	0.1407	0.0872	0.0543	0.0339	0.0213	0.0134	0.0085	0.0054	0.0035	0.0022	0.0014	0.0009	0.0006	0.0004	0.0003	0.0002	-	-	-	-

Present Value and Future Value Tables

Table A-4: Present value interest factors for a One-Dollar Annuity Discounted at k percent for n periods: $PVIFA = \frac{1 - (1 + k)^{-n}}{k}$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	24%	25%	30%
1	0.9901	0.9804	0.9709	0.9616	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8547	0.8475	0.8403	0.8333	0.8065	0.8000	0.7692
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	1.6681	1.6467	1.6257	1.6052	1.5852	1.5656	1.5465	1.5278	1.4568	1.4400	1.3608
3	2.9410	2.8939	2.8486	2.7751	2.7232	2.6730	2.6243	2.5774	2.5313	2.4869	2.4437	2.4018	2.3612	2.3216	2.2832	2.2459	2.2098	2.1743	2.1399	2.1065	1.9813	1.9520	1.8161
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	2.9746	2.9137	2.8550	2.7992	2.7452	2.6931	2.6426	2.5937	2.4043	2.3616	2.1662
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6959	3.6040	3.5172	3.4351	3.3572	3.2743	3.1953	3.1212	3.0516	2.9866	2.7454	2.6893	2.4356
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7655	4.6229	4.4899	4.3653	4.2395	4.1114	3.9975	3.8887	3.7845	3.6847	3.5892	3.4976	3.4098	3.3255	3.0205	2.9514	2.6427
7	6.7262	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.7122	4.5638	4.4226	4.2883	4.1604	4.0386	3.9224	3.8115	3.7057	3.6046	3.2423	3.1611	2.8021
8	7.6517	7.3555	7.0797	6.8227	6.5832	6.3508	6.1243	5.9038	5.6884	5.4873	5.2901	5.1067	4.9368	4.7798	4.6348	4.4998	4.3746	4.2584	4.1512	4.0527	3.4212	3.3289	2.9247
9	8.5660	8.1822	7.8661	7.5659	7.2817	7.0017	6.7255	6.4629	6.2138	5.9779	5.7550	5.5452	5.3484	5.1644	4.9924	4.8314	4.6802	4.5378	4.4043	4.2894	3.5555	3.4631	3.0190
10	9.4713	8.9825	8.5302	8.1109	7.7217	7.3501	7.0236	6.7101	6.4177	6.1446	5.8892	5.6502	5.4262	5.2161	5.0188	4.8332	4.6586	4.4941	4.3389	4.1925	3.6819	3.5708	3.0915
11	10.3676	9.7868	9.2528	8.7605	8.3064	7.8809	7.4807	7.1030	6.8052	6.4951	6.2065	5.9377	5.6869	5.4527	5.2337	5.0286	4.8364	4.6560	4.4865	4.3271	3.7757	3.6564	3.1473
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3836	7.9277	7.5001	7.1607	6.8137	6.4824	6.1644	5.8693	5.5963	5.3456	5.1171	4.9084	4.7232	4.5515	4.3927	3.8514	3.7251	3.1903
13	12.1337	11.3484	10.6350	9.9656	9.3366	8.7527	8.2077	7.7038	7.2889	6.8674	6.4699	6.0944	5.7408	5.4093	5.1000	4.8129	4.5562	4.3223	4.1117	3.9147	3.8124	3.7801	3.2233
14	13.0037	12.1062	11.2961	10.5691	9.8966	9.2950	8.7455	8.2442	7.7862	7.3657	6.9819	6.6242	6.2935	5.9893	5.7045	5.4475	5.2123	5.0001	4.8023	4.6105	3.9616	3.8241	3.2487
15	13.8651	12.8493	11.9376	11.1184	10.3797	9.7122	9.1079	8.5595	8.0507	7.6081	7.1903	6.8109	6.4624	6.1422	5.8474	5.5765	5.3242	5.0916	4.8759	4.6755	4.0013	3.8593	3.2682
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	6.6038	6.2651	5.9542	5.6685	5.4053	5.1624	4.9377	4.7296	4.0333	3.8874	3.2832
17	15.5623	14.2919	13.1861	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.5488	7.1196	6.7291	6.3729	6.0472	5.7487	5.4745	5.2223	4.9937	4.7746	4.0591	3.9099	3.2948
18	16.3983	14.9820	13.7535	12.6593	11.6886	10.8275	10.0591	9.3719	8.7256	8.2014	7.7016	7.2497	6.8399	6.4574	6.1280	5.8178	5.5339	5.2732	5.0333	4.8122	4.0799	3.9279	3.3037
19	17.2280	15.6785	14.3236	13.1339	12.0859	11.1931	10.3356	9.6026	8.9501	8.3648	7.8393	7.3658	6.9380	6.5504	6.1982	5.8775	5.5845	5.3162	5.0700	4.8435	4.0967	3.9424	3.3105
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1205	8.5136	7.9533	7.4694	7.0248	6.6231	6.2593	5.9288	5.6278	5.3527	5.1009	4.8696	4.1103	3.9539	3.3198
21	18.8570	17.0112	15.4150	14.0292	12.8212	11.7641	10.8355	10.0166	9.2922	8.6487	8.0751	7.5820	7.1015	6.6970	6.3125	5.9781	5.6648	5.3837	5.1268	4.8913	4.1212	3.9631	3.3199
22	19.6604	17.6580	15.9369	14.4511	13.1630	12.0416	11.0812	10.2007	9.4424	8.7715	8.1757	7.6446	7.1855	6.7429	6.3587	6.0113	5.6964	5.4099	5.1485	4.9094	4.1300	3.9705	3.3230
23	20.4558	18.2922	16.4438	14.8568	13.4886	12.0304	11.0722	10.3711	9.5802	8.8932	8.2664	7.7184	7.2297	6.7921	6.3968	6.0442	5.7234	5.4321	5.1688	4.9245	4.1371	3.9764	3.3254
24	21.2434	18.9139	16.9355	15.2470	13.7986	12.5504	11.4693	10.5208	9.7066	8.9847	8.3481	7.7843	7.2629	6.8351	6.4338	6.0726	5.7465	5.4509	5.1822	4.9371	4.1428	3.9811	3.3272
25	22.0232	19.5235	17.4131	15.6221	14.0933	12.7834	11.6536	10.6748	9.8226	9.0770	8.4217	7.8431	7.3000	6.8729	6.4641	6.0971	5.7662	5.4669	5.1951	4.9476	4.1474	3.9849	3.3286
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	7.4957	7.0027	6.5660	6.1772	5.8294	5.5160	5.2347	4.9788	4.1601	3.9950	3.3321
35	29.4086	24.9986	21.4872	18.6646	16.2742	14.4902	12.9477	11.6545	10.5668	9.6442	8.9552	8.1755	7.5856	7.0700	6.6166	6.2153	5.8502	5.5386	5.2572	4.9915	4.1644	3.9984	3.3330
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3377	11.9246	10.7574	9.7791	9.0511	8.2430	7.6544	7.1059	6.6418	6.2305	5.8713	5.5482	5.2582	4.9868	4.1659	3.9995	3.3332
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	9.0417	8.3045	7.6752	7.1327	6.6605	6.2483	5.8801	5.5541	5.2623	4.9905	4.1666	3.9999	3.3333

