CERTIFIED PUBLIC ACCOUNTANT

FOUNDATION LEVEL 1 EXAMINATION

F1.1: BUSINESS MATHEMATICS AND QUANTITATIVE METHODS

DATE: THURSDAY 29, MAY 2025

INSTRUCTIONS:

1. Time allowed: **3 hours and 15 minutes**. (15 minutes reading and 3 hours writing).
2. This paper has **seven questions** and only **five questions** are to be attempted.
3. Marks allocated to each question are shown at the end of the question.
4. Show all your workings and formulas, where applicable.
5. The question paper should not be taken out of the examination room.

QUESTION ONE

Salvos Group Hotel Holdings Company Ltd (SGH) operates a hotel named Gorilla Ituye Investment Hotel Ltd (GIIH), strategically located in the Musanze district. During socio-economic transformation seminars organized and conducted by the Public Sector Federation (PSF) at Virunga Hotel in Musanze district, the Chief Finance Officer (CFO) of Gorilla Ituye Investment Hotel Ltd attended. Upon returning to the office, the CFO conceived a new product idea: launching "Akazuyazi" water.

Subsequently, during the annual meeting of Gorilla Ituye Investment Hotel Ltd, "Business expansion strategy" was on the agenda. The CFO proposed launching Akazuyazi water with an initial investment of FRW 100,000, noting the company's cost of capital is 12%. However, Dinah Munyaneza, the major shareholder, stated that given the hotel's high earnings, the acceptance of Akazuyazi Water could only be considered based on an external study. The following data were provided:

Year1		**Year2**	
Cash flow	**Probability**	**Cash flow**	**Probability**
		50,000	0.3
		60,000	0.5
60,000	0.3	70,000	0.2
		60,000	0.3
		80,000	0.5
80,000	0.4	100,000	0.2
		80,000	0.3
		100,000	0.5
100,000	0.3	120,000	0.2

Required:

You have been hired as consultant to advise on the following:

a) The product expected monetary value (EMV). (8 Marks)

b) Evaluate The Product viability using Net Present Value (NPV). (6 Marks)

c) Calculate the minimum cash flow required in Year 2 (if Year 1 = 80,000) to achieve an NPV = 0. (2 Marks)

d) Examine the merits and demerits of decision tree. (4 Marks)

(Total: 20 Marks)

QUESTION TWO

In the kingdom of the Republic of Idiom, there are five coal mines which have the following outputs and production costs:

Mine	Output (tonnes /day)	Production cost (FRW/ tonne)
1	120	25
2	150	29
3	80	34
4	160	26
5	140	28

Before the coal can be sold, it must be 'cleaned' and graded at one of three coal presentation plants. The capacities and operating costs of these plants are as follows:

Plant	Capacity (Tonnes/day)	Operating cost (FRW/tonne)
A	300	2
B	200	3
C	200	3

All coal is transported by rail at cost of FRW 0.5 per tonne per km and the distances (in kilometres) from each mine to the three preparation plants are:

Preparation plant	Mines (Distance)				
	1	**2**	**3**	**4**	**5**
A	22	44	28	52	24
B	18	16	24	42	48
C	44	32	16	16	22

Required:

a) Using a transportation model (Vogel's penalty cost method)**, determine how the output of each mine should be allocated to the three preparation plants.** (14 Marks)

b) Following the installation of new equipment at coal mine number 3, the production cost is expected to fall to FRW 30 per tonne. **What effect, if any, will this have on the allocation of coal to the preparation plants?** (2 Marks)

c) It is planned to increase the output of coal mine number 5 to 180 tonnes per day, which can be achieved without any increase in production cost per tonne. **How will this affect the allocation of coal to the preparation plants**? (2 Marks)

d) **Explain TWO implications transportation model in real business.** (2 Marks)

(Total: 20 Marks)

QUESTION THREE

A project involving the construction of a bridge has eight activities. The project manager has determined the normal and crash times together with respective normal and crash cost as follows:

Activity	Predecessors	Normal Time (months)	Crash Time (months)	Normal Cost (FRW)	Crash Cost (FRW)
A	-	4	2	200,000	380,000
B	-	6	4	640,000	800,000
C	A	3	2	100,000	200,000
D	A	6	4	390,000	580,000
E	B	8	5	600,000	780,000
F	B	5	4	300,000	370,000
G	C,E	4	2	680,000	780,000
H	D,G	4	3	260,000	400,000

Required:

a) **Draw the network diagram for the project**. (4 Marks)

b) **Find the critical path and the project duration.** (2 Marks)

c) **Find the slack time for each activity of the project.** (4 Marks)

d) **What is the least expensive way to shorten the project to 17 months, detailing the necessary activity crashes and the final project cost?** (10 Marks)

(Total: 20 Marks)

QUESTION FOUR

a) Kigali Ltd (KL) is a specialized manufacturer of leather shoes. The production manager of KL has indicated that total cost of producing x units of the leather shoes is given by C(x) = 7,500x + 150,000 (in FRW) and the demand functions as P(x) = 8,500x (in FRW).

Required:

i) **Calculate the total cost, total revenue and total profit for a given product if 2,700 units are produced**. (3 Marks)

ii) **Compute the number of shoes KL should produce to break even and find the breakeven in sales revenue**. (4 Marks)

iii) **Calculate the level of sales (shoes) required to generate a target profit of FRW 6,500,000.** (2 Marks)

iv) **Determine the margin of safety if KL had budgeted 185 shoes to be produced in the next quarter**. (2 Marks)

b) An agricultural consultant has been asked by the Director General of Rwanda Agriculture and Animal Resources Development Board (RAB) to prepare a good fertilizer mixture sufficient for the production of two cash crops namely Chia seeds and Sesame seeds. A field was provided by RAB where to do this trial. The consultant suggested 3 local fertilizers required for the growth of these crops, which are ONGERA, UNGUKA and MUSARURO. Information provided by the consultant is that a chia seed will require 40 kg of ONGERA fertilizer, 50 kg of UNGUKA and 5 kg of MUSARURO. On the other hand, a sesame seed will require 30 Kg of ONGERA and 100 kg of UNGUKA. The field will require at least 900 kg of UNGUKA, 480 kg of ONGERA and 15 kg of MUSARURO. Chia seeds cost FRW 4,000 per kg and Sesame seeds cost FRW 2,000 per kg. The Consultant has approached you to help him solve a linear programming problem.

Required:

Solve the linear programming model using graphical method and find the kilograms of both crops required to be produced at a minimum cost. (9 Marks)

(Total: 20 Marks)

QUESTION FIVE

a) MUGIRE Ltd, a supplier of electric batteries for motorcycles in Rwanda, claims that a new electric battery runs for 6 hours once fully charged. A survey was conducted by selecting a simple random sample of 50 batteries for testing. It was found out that the battery runs for an average 6.25 hours. The standard deviation is known and it is 0.50 hours, and the runs for the battery are normally distributed.

Required:

i) **State two types of hypotheses considered in hypothesis testing.** (2 Marks)

ii) **Conduct a hypothesis test to either support that the mean run time for the electric batteries is more than 6 hours or not. Use a level of significance of 5 %**. (8 Marks)

b) The data in the table below shows the annual salary for full time employees and the number of years of experience gained in a certain institution.

Years of experience (x)	Salary (y, in FRW '000')
5	10,000
6	13,500
7	15,700
10	22,100
12	24,500
15	28,000
18	34,500
22	39,700

Required:

i) **Derive a linear equation for the data provided in the table above using the least square method.** (7 Marks)

ii) **Determine the expected salary for a person who has worked for 30 years from the equation derived in i).** (1 Mark)

iii) **State two business applications of linear regression in forecasting.** (2 Marks)

(Total: 20 Marks)

QUESTION SIX

a) Shikama want to run a business and has to decide which project to run among the three. The following table shows the opportunity loss of those project with respect to the economic condition.

Alternatives	**Economic condition**		
	Recession	**Normal**	**Boom**
Project A	0	2,000	5,980
Project B	4,075	1,750	0
Project C	1,575	0	1,705
Probability	0.2	0.5	0.3

Required

i) **Calculate the expected opportunity loss of each decision**. (4 Marks)

ii) **Determine the best alternative, and state why it is the best alternative.** (2 Marks)

b) A manufacturing manager must choose between three production strategies (A, B, C) to minimize operational costs under uncertain demand scenarios (S1, S2, S3). The cost saving matrix (in RWF million) is as follows:

Strategy	**Low Demand (S1)**	**Steady Demand (S2)**	**High Demand (S3)**
A	14	22	6
B	19	18	12
C	12	17	15

Required:

Use the following decision criterion to show the best alternatives:

i) **Maximin.** (2 Marks)

ii) **Maximax.** (2 Marks)

iii) **Principle of insufficient reason**. (2 Marks)

iv) **Explain THREE elements of decision making.** (3 Marks)

c) John is paid 8 if two coins turn both heads and 1 if two coins turn both tails. Peter is paid 3 when the two coins do not match. **whom do you consider in the better situation regarding higher expected value?** (5 Marks)

(Total: 20 Marks)

QUESTION SEVEN

a) Phoenix Limited is a company operating in Eastern Valley, in cooperation with Salvos Motel Ltd, it had been planning to boost up its employees' psychosocial well-being, and it started by taking them into support activities. Hence out of 300 employees in company. 95 play cricket only, 120 play football only, 80 play volleyball only and 5 play no games. If one employee is chosen at random.

Required:

Determine the probability that:

i) **He/she plays volleyball.** (1 Mark)

ii) **He/she plays either cricket or volleyball.** (1 Mark)

iii)**He/she plays neither football nor volleyball.** (1 Mark)

b) A bag contains 3 red and 7 black balls. Two balls are drawn at random without replacement. If the second ball is red, what is the probability that the first ball is also red?

Required:

If the second ball is red, **what is the probability that the first ball is also red?** (5 Marks)

d) If the probability of a student passing in Quantitative methods and analysis (QMA) is 4/5 and the probability of the student passing in both science and QMA is ½.

Required:

Given that a student has passed Science, what is the probability they also passed QMA? Show all steps. (2 Marks)

d) The following figures represent a distribution for starting companies.

Capital (FRW 000,000)	Numbers of companies
01─5	20
6─10	27
11─15	29
16─20	38
21─25	48
26─30	53
31─35	70

Required:

Determine the lower-quartile and upper-quartile, hence, determine whether the distribution is skewed. (10 Marks)

(Total: 20 Marks)

End of Question Paper

Normal Distribution Table – Z-table

Present value interest factor of Frw1 per period at i% for n periods, PVIF(i,n).

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026
25	0.780	0.610	0.478	0.375	0.295	0.233	0.184	0.146	0.116	0.092	0.074	0.059	0.047	0.038	0.030	0.024	0.020	0.016	0.013	0.010
30	0.742	0.552	0.412	0.308	0.231	0.174	0.131	0.099	0.075	0.057	0.044	0.033	0.026	0.020	0.015	0.012	0.009	0.007	0.005	0.004
35	0.706	0.500	0.355	0.253	0.181	0.130	0.094	0.068	0.049	0.036	0.026	0.019	0.014	0.010	0.008	0.006	0.004	0.003	0.002	0.002
40	0.672	0.453	0.307	0.208	0.142	0.097	0.067	0.046	0.032	0.022	0.015	0.011	0.008	0.005	0.004	0.003	0.002	0.001	0.001	0.001
50	0.608	0.372	0.228	0.141	0.087	0.054	0.034	0.021	0.013	0.009	0.005	0.003	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000

Table of the standard normal distribution values ($z \leq 0$)

$-z$	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.50000	0.49601	0.49202	0.48803	0.48405	0.48006	0.47608	0.47210	0.46812	0.46414
0.1	0.46017	0.45621	0.45224	0.44828	0.44433	0.44038	0.43644	0.43251	0.42858	0.42466
0.2	0.42074	0.41683	0.41294	0.40905	0.40517	0.40129	0.39743	0.39358	0.38974	0.38591
0.3	0.38209	0.37828	0.37448	0.37070	0.36693	0.36317	0.35942	0.35569	0.35197	0.34827
0.4	0.34458	0.34090	0.33724	0.33360	0.32997	0.32636	0.32276	0.31918	0.31561	0.31207
0.5	0.30854	0.30503	0.30153	0.29806	0.29460	0.29116	0.28774	0.28434	0.28096	0.27760
0.6	0.27425	0.27093	0.26763	0.26435	0.26109	0.25785	0.25463	0.25143	0.24825	0.24510
0.7	0.24196	0.23885	0.23576	0.23270	0.22965	0.22663	0.22363	0.22065	0.21770	0.21476
0.8	0.21186	0.20897	0.20611	0.20327	0.20045	0.19766	0.19489	0.19215	0.18943	0.18673
0.9	0.18406	0.18141	0.17879	0.17619	0.17361	0.17106	0.16853	0.16602	0.16354	0.16109
1.0	0.15866	0.15625	0.15386	0.15151	0.14917	0.14686	0.14457	0.14231	0.14007	0.13786
1.1	0.13567	0.13350	0.13136	0.12924	0.12714	0.12507	0.12302	0.12100	0.11900	0.11702
1.2	0.11507	0.11314	0.11123	0.10935	0.10749	0.10565	0.10384	0.10204	0.10027	0.09853
1.3	0.09680	0.09510	0.09342	0.09176	0.09012	0.08851	0.08692	0.08534	0.08379	0.08226
1.4	0.08076	0.07927	0.07780	0.07636	0.07493	0.07353	0.07215	0.07078	0.06944	0.06811
1.5	0.06681	0.06552	0.06426	0.06301	0.06178	0.06057	0.05938	0.05821	0.05705	0.05592
1.6	0.05480	0.05370	0.05262	0.05155	0.05050	0.04947	0.04846	0.04746	0.04648	0.04551
1.7	0.04457	0.04363	0.04272	0.04182	0.04093	0.04006	0.03920	0.03836	0.03754	0.03673
1.8	0.03593	0.03515	0.03438	0.03363	0.03288	0.03216	0.03144	0.03074	0.03005	0.02938
1.9	0.02872	0.02807	0.02743	0.02680	0.02619	0.02559	0.02500	0.02442	0.02385	0.02330
2.0	0.02275	0.02222	0.02169	0.02118	0.02068	0.02018	0.01970	0.01923	0.01876	0.01831
2.1	0.01786	0.01743	0.01700	0.01659	0.01618	0.01578	0.01539	0.01500	0.01463	0.01426
2.2	0.01390	0.01355	0.01321	0.01287	0.01255	0.01222	0.01191	0.01160	0.01130	0.01101
2.3	0.01072	0.01044	0.01017	0.00990	0.00964	0.00939	0.00914	0.00889	0.00866	0.00842

2.4	0.008200.00798	0.00776	0.00755	0.00734	0.00714	0.00695	0.00676	0.00657	0.00639
2.5	0.006210.00604	0.00587	0.00570	0.00554	0.00539	0.00523	0.00509	0.00494	0.00480
2.6	0.004660.00453	0.00440	0.00427	0.00415	0.00403	0.00391	0.00379	0.00368	0.00357
2.7	0.003470.00336	0.00326	0.00317	0.00307	0.00298	0.00289	0.00280	0.00272	0.00264
2.8	0.002560.00248	0.00240	0.00233	0.00226	0.00219	0.00212	0.00205	0.00199	0.00193
2.9	0.001870.00181	0.00175	0.00170	0.00164	0.00159	0.00154	0.00149	0.00144	0.00140
3.0	0.001350.00131	0.00126	0.00122	0.00118	0.00114	0.00111	0.00107	0.00104	0.00100
3.1	0.000970.00094	0.00090	0.00087	0.00085	0.00082	0.00079	0.00076	0.00074	0.00071
3.2	0.000690.00066	0.00064	0.00062	0.00060	0.00058	0.00056	0.00054	0.00052	0.00050
3.3	0.000480.00047	0.00045	0.00043	0.00042	0.00040	0.00039	0.00038	0.00036	0.00035
3.4	0.000340.00033	0.00031	0.00030	0.00029	0.00028	0.00027	0.00026	0.00025	0.00024
3.5	0.000230.00022	0.00022	0.00021	0.00020	0.00019	0.00019	0.00018	0.00017	0.00017

Table of the standard normal distribution values ($z \geq 0$)

z	**0.00**	**0.01**	**0.02**	**0.03**	**0.04**	**0.05**	**0.06**	**0.07**	**0.08**	**0.09**
0.0	0.500000.50399	0.50798	0.51197	0.51595	0.51994	0.52392	0.52790	0.53188	0.53586
0.1	0.539830.54380	0.54776	0.55172	0.55567	0.55962	0.56356	0.56749	0.57142	0.57535
0.2	0.579260.58317	0.58706	0.59095	0.59483	0.59871	0.60257	0.60642	0.61026	0.61409
0.3	0.617910.62172	0.62552	0.62930	0.63307	0.63683	0.64058	0.64431	0.64803	0.65173
0.4	0.655420.65910	0.66276	0.66640	0.67003	0.67364	0.67724	0.68082	0.68439	0.68793
0.5	0.691460.69497	0.69847	0.70194	0.70540	0.70884	0.71226	0.71566	0.71904	0.72240
0.6	0.725750.72907	0.73237	0.73565	0.73891	0.74215	0.74537	0.74857	0.75175	0.75490
0.7	0.758040.76115	0.76424	0.76730	0.77035	0.77337	0.77637	0.77935	0.78230	0.78524
0.8	0.788140.79103	0.79389	0.79673	0.79955	0.80234	0.80511	0.80785	0.81057	0.81327
0.9	0.815940.81859	0.82121	0.82381	0.82639	0.82894	0.83147	0.83398	0.83646	0.83891
1.0	0.841340.84375	0.84614	0.84849	0.85083	0.85314	0.85543	0.85769	0.85993	0.86214
1.1	0.864330.86650	0.86864	0.87076	0.87286	0.87493	0.87698	0.87900	0.88100	0.88298
1.2	0.884930.88686	0.88877	0.89065	0.89251	0.89435	0.89617	0.89796	0.89973	0.90147

1.3	0.90320	0.90490	0.90658	0.90824	0.90988	0.91149	0.91308	0.91466	0.91621	0.91774
1.4	0.91924	0.92073	0.92220	0.92364	0.92507	0.92647	0.92785	0.92922	0.93056	0.93189
1.5	0.93319	0.93448	0.93574	0.93699	0.93822	0.93943	0.94062	0.94179	0.94295	0.94408
1.6	0.94520	0.94630	0.94738	0.94845	0.94950	0.95053	0.95154	0.95254	0.95352	0.95449
1.7	0.95543	0.95637	0.95728	0.95818	0.95907	0.95994	0.96080	0.96164	0.96246	0.96327
1.8	0.96407	0.96485	0.96562	0.96638	0.96712	0.96784	0.96856	0.96926	0.96995	0.97062
1.9	0.97128	0.97193	0.97257	0.97320	0.97381	0.97441	0.97500	0.97558	0.97615	0.97670
2.0	0.97725	0.97778	0.97831	0.97882	0.97932	0.97982	0.98030	0.98077	0.98124	0.98169
2.1	0.98214	0.98257	0.98300	0.98341	0.98382	0.98422	0.98461	0.98500	0.98537	0.98574
2.2	0.98610	0.98645	0.98679	0.98713	0.98745	0.98778	0.98809	0.98840	0.98870	0.98899
2.3	0.98928	0.98956	0.98983	0.99010	0.99036	0.99061	0.99086	0.99111	0.99134	0.99158
2.4	0.99180	0.99202	0.99224	0.99245	0.99266	0.99286	0.99305	0.99324	0.99343	0.99361
2.5	0.99379	0.99396	0.99413	0.99430	0.99446	0.99461	0.99477	0.99492	0.99506	0.99520
2.6	0.99534	0.99547	0.99560	0.99573	0.99585	0.99598	0.99609	0.99621	0.99632	0.99643
2.7	0.99653	0.99664	0.99674	0.99683	0.99693	0.99702	0.99711	0.99720	0.99728	0.99736
2.8	0.99744	0.99752	0.99760	0.99767	0.99774	0.99781	0.99788	0.99795	0.99801	0.99807
2.9	0.99813	0.99819	0.99825	0.99831	0.99836	0.99841	0.99846	0.99851	0.99856	0.99861
3.0	0.99865	0.99869	0.99874	0.99878	0.99882	0.99886	0.99889	0.99893	0.99896	0.99900
3.1	0.99903	0.99906	0.99910	0.99913	0.99916	0.99918	0.99921	0.99924	0.99926	0.99929
3.2	0.99931	0.99934	0.99936	0.99938	0.99940	0.99942	0.99944	0.99946	0.99948	0.99950
3.3	0.99952	0.99953	0.99955	0.99957	0.99958	0.99960	0.99961	0.99962	0.99964	0.99965
3.4	0.99966	0.99968	0.99969	0.99970	0.99971	0.99972	0.99973	0.99974	0.99975	0.99976
3.5	0.99977	0.99978	0.99978	0.99979	0.99980	0.99981	0.99981	0.99982	0.99983	0.99983

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