- ***Clearly mark your answer on the scantron .***
- **This is a closed book exam.**
- **Nonprogrammable calculators are allowed.**
- **Each question has 1 mark. The exam duration is 90 minutes.**

Last Name _____ ***First Name*** _____ ***Student Number*** _____

(1) (1 point) Which of the following can't be a probability?

A. -2.1 B. 0 C. 0.001 D. $\frac{\sqrt{5}}{3}$

(2) (1 point) If $\mathbf{Pr}(A) = 0.40$, $\mathbf{Pr}(B) = 0.30$ and $\mathbf{Pr}(A \cap B) = 0.12$, then A and B are:

A. dependent events

B. independent events

C. mutually exclusive events

D. disjoint events

(3) (1 point) Which one of the following is true when for a random variable X we have $V(X) = 0$.

A. $E(X) = 0$ B. $E(X) = E(X^2)$ **C.** $E^2(X) = E(X^2)$ D. $V(X) = E(X)$

(4) (1 point) For a random variable X we have $E(X(X-2)) = 15$ and $E(X) = 1$ then what is the standard deviation of X.

A. $\sigma = 4$ B. $\sigma = 2$ C. $\sigma = \sqrt{2}$ D. $\sigma = 16$

(5) (1 point) The number of customers who enter a particular restaurant has Poisson distribution with average of 10 customers per hour. What is the probability that there will be no customer in the next half an hour?

A. e^{-5} B. $1 - e^{-5}$ C. $\frac{e^{-10}}{2}$ D. $\frac{1-e^{-10}}{2}$

(6) (1 point) A box contains 10 electric lamps of which 2 are defective. We choose 3 lamps at random from the box in such a way that after examining each chosen lamp we *return* it to the box and pick another lamp. What is the probability that all of the chosen 3 lamps are defective.

A. $\frac{3}{\binom{10}{3}}$ B. $1 - \frac{3}{\binom{10}{3}}$ C. $3(0.2)^3$ **D.** $(0.2)^3$

(7) (1 point) 60% of babies born in a particular city are boys. Consider the experiment of recording the number of baby girls till the third baby boy is born. How many baby girls do you expect to see in this experiment.

A. 3 B. 6 **C. 2** D. 18

(8) (1 point) You have 10 problems from which 6 will be randomly chosen by the prof in an upcoming exam. If you know the solution to 3 of them, then what is the probability that you will receive a zero on the exam.

A. 0.0333 B. 0 C. 0.7 D. 0.333

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(9) (1 point) A fair coin is flipped until a head appear. The probability it will take exactly 3 flips to obtain the first head is

A. $\frac{3}{8}$ B. $\frac{45}{256}$) C. $\frac{45}{512}$) **D.** $\frac{1}{8}$

(10) (1 point) Consider the following incomplete probability distribution table of random variable X and answer the following question.

x	-2	-1	0	1	2
p(x)	0.1	0.3	0.2	0.3	**?**

The missing number, **?**, in the above table and $E(X)$ **respectively** are:

A. 0, **B. 0.1, 0** C. 0, -1 D. 0.3, 0.3

(11) (1 point) Let X be a continuous random variable with density function

$$f(x) = \begin{cases} \frac{1}{2}e^{-\frac{x}{2}}, & x \geq 0 \\ 0, & \text{otherwise} \end{cases}$$

Determine the 25^{th} percentile of the distribution of X.

A. $\ln\left(\frac{4}{9}\right)$ **B.** $\ln\left(\frac{16}{9}\right)$ C. ln(4) D. ln(6)

(12) (1 point) Police plan to enforce speed limits by using radar traps at four different locations within the city limits. The radar traps at each of the locations L1, L2, L3, and L4 will be operated 40%, 30%, 20%, and 30% of the time. If a person who is speeding on her way to work has probabilities of 0.2, 0.1, 0.5, and 0.2, respectively, of passing through these locations, what is the probability that she will receive a speeding ticket?

A. 1.2 **B.** 0.27 C. 0.2 D. not enough information is provided

(13) (1 point) The weather on a particular day is classified as either cold, warm, or hot. There is a probability of 0.15 that it is cold and a probability of 0.25 that it is warm. In addition, on each day it may either rain or not rain. On cold days there is a probability of 0.30 that it will rain, on warm days there is a probability of 0.40 that it will rain, and on hot days there is a probability of 0.50 that it will rain. If it is raining on a particular day, what is the probability that it is cold?

A. 0.101 B. 0.15 C. 0.3 D. not enough information is provided

(14) (1 point) A batch of 500 containers for frozen orange juice contains 5 that are defective. Two are selected, at random, without replacement from the batch. What is the probability that the second one selected is defective given that the first one was defective?

A. $\frac{4}{500}$ B. $\frac{5}{500}$ C. $\frac{5}{499}$ **D.** $\frac{4}{499}$

(15) (1 point) If the pdf of a r.v is given as

$$f(x) = \begin{cases} kx, & 0 \leq x \leq 2 \\ 0. & otherwise \end{cases}$$

The value of k is

A. 1 **B.** $\frac{1}{2}$ C. $\frac{1}{4}$ D. None of these

(16) (1 point) Let X be a random variable with distribution function

$$F(x) = \begin{cases} 0, & x < 0 \\ \frac{x}{8}, & 0 \le x < 1 \\ \frac{2+x}{8}, & 1 \le x < 2 \\ \frac{9+x}{12}, & 2 \le x < 3 \\ 1, & x \ge 3 \end{cases}$$

Calculate $\mathbf{Pr}(1 \le X \le 2)$.

A. $\frac{3}{8}$ B. $\frac{7}{16}$ C. $\frac{13}{24}$ **D.** $\frac{19}{24}$

(17) (1 point) It is known that the amount of apple juice found in 500ml bottle is uniformly distributed between 495ml and 510ml. What is the probability that a randomly selected bottle of apple juice contains less than 500ml of juice?

A. 0.333 B. 0.667 C. 0.500 D. 0.000

(18) (1 point) The time it takes a technician to fix a computer is exponentially distributed with a mean of 10 minutes. What is the probability that it will take the technician less than 5 minutes to fix a randomly selected computer?

A. 0.487 B. 0.373 C. 0.632 **D. 0.393**

(19) (1 point) The random variable X is normally distributed with a mean of 70 and a standard deviation of 10. What is the probability that X is between 50 and 90?

A. 0.683 **B. 0.954** C. 0.271 D. 0.340

(20) (1 point) Monthly expenditure on their credit cards, by credit card holders from a certain bank, follows a normal distribution with a mean of 1,295.00 and a standard deviation of 750.00. What proportion of credit card holders spend more than 1,500.00 on their credit cards per month?

A. 0.487 **B. 0.394** C. 0.500 D. 0.791

(21) (1 point) The diameters of oranges found in the orchard of an orange farm follow a normal distribution with a mean of 120mm and a standard deviation of 10mm. The smallest 20% of oranges (those with the smallest diameters) cannot be sold and are therefore given away. What is the cut-off diameter in this case if oranges with the smallest 20% of diameters are to be given away?

A. 107.2 B. 103.6 **C. 111.6** D. 109.6

(22) (1 point) Suppose that the time, in hours, required to repair a heat pump is a random variable X having a gamma distribution with parameters $\alpha = 2$ and $\beta = 1/2$. What is the probability that on the next service call, at most 1 hour will be required to repair the heat pump?

A. 0.2640 B. 0.0190 C. 0.1430 **D. 0.5940**

(23) (1 point) Historical data collected at First of America Bank in Michigan revealed that 80% of all customers applying for a loan are accepted. Suppose that 50 new loan applications are selected at random. What is the probability that at least 42 loans will be accepted?

A. 0.1894 B. 0.24 **C. 0.2981** D. 0.305

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(24) (1 point) Let A and B be independent events such that $\mathbf{Pr}(A) = 0.5$, $\mathbf{Pr}(B) = 0.6$. Calculate $\mathbf{Pr}(A^c \cup B^c)$

A. 0.8 B. 0.2 C. 0.3 **D.** 0.7

(25) (1 point) The number of flaws in a unit of a particular magnetic tape of length 50 meters has Poisson distribution with the average of 2 flaws per 10 meters. We choose 6 units of this tape. What is the probability that at least one of them is flawless?

A. $6e^{-10}$ **B.** $1 - (1 - e^{-10})^6$ C. $6(1 - e^{-10})$ D. $1 - 6e^{-10}$

..... *THE END OF THE QUESTIONS* .....

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TABLE OF COMMON DISTRIBUTIONS

Bernoulli(p)	
pmf	$\mathbf{P}(X=x) = p^x(1-p)^{1-x}, \quad x=0,1$
mean and variance	$\mathbf{E}(X) = p, \quad \mathbf{Var}(X) = p(1-p)$
Binomial(n,p)	
pmf	$\mathbf{P}(X=x) = \binom{n}{x}p^x(1-p)^{n-x}, \quad x=0,1,\ldots,n$
mean and variance	$\mathbf{E}(X) = np, \quad \mathbf{Var}(X) = np(1-p)$
Hypergeometric(N,M,n)	
pmf	$\mathbf{P}(X=x) = \frac{\binom{M}{x}\binom{N-M}{n-x}}{\binom{N}{n}}$
mean and variance	$\mathbf{E}(X) = n\frac{M}{N}, \quad \mathbf{Var}(X) = \left(\frac{N-n}{N-1}\right) n\frac{M}{N}\left(1-\frac{M}{N}\right)$
Negative binomial(r,p)	
pmf	$\mathbf{P}(X=x) = \binom{x+r-1}{r-1}p^r(1-p)^x, \quad x=0,1,2,\ldots$
mean and variance	$\mathbf{E}(X) = \frac{r(1-p)}{p}, \quad \mathbf{Var}(X) = \frac{r(1-p)}{p^2}$
Geometric(p)	
pmf	$\mathbf{P}(X=x) = p(1-p)^{x-1}, \quad x=1,2,\ldots$
mean and variance	$\mathbf{E}(X) = \frac{1}{p}, \quad \mathbf{Var}(X) = \frac{1-p}{p^2}$
Poisson(λ)	
pmf	$\mathbf{P}(X=x) = \frac{e^{-\lambda}\lambda^x}{x!}, \quad x=0,1,2,\ldots$
mean and variance	$\mathbf{E}(X) = \lambda, \quad \mathbf{Var}(X) = \lambda$
Normal(μ,σ^2)	
pdf	$f(x) = \frac{1}{\sigma\sqrt{2\pi}}\exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right), \qquad x\in\mathbb{R}$
mean and variance	$\mathbf{E}(X) = \mu, \qquad \mathbf{Var}(X) = \sigma^2$
Uniform(a,b)	
pdf	$f(x) = \frac{1}{b-a}, \qquad a\le x\le b$
mean and variance	$\mathbf{E}(X) = (a+b)/2, \qquad \mathbf{Var}(X) = (b-a)^2/12$
Exponential(λ)	
pdf	$f(x) = \lambda e^{-\lambda x}, \qquad x\ge 0$
mean and variance	$\mathbf{E}(X) = 1/\lambda, \qquad \mathbf{Var}(X) = 1/\lambda^2$
Gamma(α,β)	
pdf	$f(x) = \frac{1}{\beta^\alpha\Gamma(\alpha)}x^{\alpha-1}e^{-x/\beta}, \qquad x\ge 0$
mean and variance	$\mathbf{E}(X) = \alpha\beta, \qquad \mathbf{Var}(X) = \alpha\beta^2$

Formulae

Law of total probability: $P(A) = \sum_{i=1}^{k} P(A|S_i)P(S_i)$

Bayes' Formula: $P(S_j|A) = \frac{P(A|S_j)P(S_j)}{\sum_{i=1}^{k} P(A|S_i)P(S_i)}$

Mean: $\mu_X = \mathbf{E}(X) = \sum x_i p(x_i)$

Variance $\sigma_X^2 = \mathbf{Var}(X) = \mathbf{E}(X-\mu_X)^2 = \mathbf{E}X^2 - \mu^2$ and $\sigma_X = \sqrt{\sigma_X^2}$

APPROXIMATIONS

Binomial approximation to hypergeometric: if X has hypergeometric with parameters N, M, n and $n/N \le .05$ then X can be considered as binomial with parameters n, and $p = M/N$.

Normal approximation to binomial: if X has binomial (n,p) and $np \ge 10$ and $n(1-p) \ge 10$, then X can be considered as normally distributed with mean $\mu = np$ and standard deviation $\sigma = \sqrt{np(1-p)}$

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Cumulative Poisson Probabilities

Tabulated values are $\mathbf{Pr}(x \leq k) = p(0) + p(1) + \cdots + p(k)$

	μ									
x	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00
0	0.3329	0.3012	0.2725	0.2466	0.2231	0.2019	0.1827	0.1653	0.1496	0.1353
1	0.6990	0.6626	0.6268	0.5918	0.5578	0.5249	0.4932	0.4628	0.4337	0.4060
2	0.9004	0.8795	0.8571	0.8335	0.8088	0.7834	0.7572	0.7306	0.7037	0.6767
3	0.9743	0.9662	0.9569	0.9463	0.9344	0.9212	0.9068	0.8913	0.8747	0.8571
4	0.9946	0.9923	0.9893	0.9857	0.9814	0.9763	0.9704	0.9636	0.9559	0.9473
5	0.9990	0.9985	0.9978	0.9968	0.9955	0.9940	0.9920	0.9896	0.9868	0.9834
6	0.9999	0.9997	0.9996	0.9994	0.9991	0.9987	0.9981	0.9974	0.9966	0.9955
7	1.0000	1.0000	0.9999	0.9999	0.9998	0.9997	0.9996	0.9994	0.9992	0.9989
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999	0.9998	0.9998
9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Cumulative Binomial Probabilities

Tabulated values are $\mathbf{Pr}(x \leq k) = p(0) + p(1) + \cdots + p(k)$

$n = 10$											
	p										
k	0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.95
0	0.599	0.349	0.107	0.028	0.006	0.001	0.000	0.000	0.000	0.000	0.000
1	0.914	0.736	0.376	0.149	0.046	0.011	0.002	0.000	0.000	0.000	0.000
2	0.988	0.930	0.678	0.383	0.167	0.055	0.012	0.002	0.000	0.000	0.000
3	0.999	0.987	0.879	0.650	0.382	0.172	0.055	0.011	0.001	0.000	0.000
4	1.000	0.998	0.967	0.850	0.633	0.377	0.166	0.047	0.006	0.000	0.000
5	1.000	1.000	0.994	0.953	0.834	0.623	0.367	0.150	0.033	0.002	0.000
6	1.000	1.000	0.999	0.989	0.945	0.828	0.618	0.350	0.121	0.013	0.001
7	1.000	1.000	1.000	0.998	0.988	0.945	0.833	0.617	0.322	0.070	0.012
8	1.000	1.000	1.000	1.000	0.998	0.989	0.954	0.851	0.624	0.264	0.086
9	1.000	1.000	1.000	1.000	1.000	0.999	0.994	0.972	0.893	0.651	0.401
10	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

The incomplete Gamma Function $F(x; \alpha)$

Note: $\mathbf{Pr}(X(\alpha, \beta) \leq t) = F(\frac{t}{\beta}; \alpha)$

	α									
x	1	2	3	4	5	6	7	8	9	10
1	0.6320	0.2640	0.0800	0.0190	0.0040	0.0010	0.0000	0.0000	0.0000	0.0000
2	0.8650	0.5940	0.3230	0.1430	0.0530	0.0170	0.0050	0.0010	0.0000	0.0000
3	0.9500	0.8010	0.5770	0.3530	0.1850	0.0840	0.0340	0.0120	0.0040	0.0010
4	0.9820	0.9080	0.7620	0.5670	0.3710	0.2150	0.1110	0.0510	0.0210	0.0080
5	0.9930	0.9600	0.8750	0.7350	0.5600	0.3840	0.2380	0.1330	0.0680	0.0320
6	0.9980	0.9830	0.9380	0.8490	0.7150	0.5540	0.3940	0.2560	0.1530	0.0840
7	0.9990	0.9930	0.9700	0.9180	0.8270	0.6990	0.5500	0.4010	0.2710	0.1700
8	1.0000	0.9970	0.9860	0.9580	0.9000	0.8090	0.6870	0.5470	0.4070	0.2830
9		0.9990	0.9940	0.9790	0.9450	0.8840	0.7930	0.6760	0.5440	0.4130
10		1.0000	0.9970	0.9900	0.9710	0.9330	0.8700	0.7800	0.6670	0.5420
11			0.9990	0.9950	0.9850	0.9620	0.9210	0.8570	0.7680	0.6590
12			1.0000	0.9980	0.9920	0.9800	0.9540	0.9110	0.8450	0.7580
13				0.9990	0.9960	0.9890	0.9740	0.9460	0.9000	0.8340
14				1.0000	0.9980	0.9940	0.9860	0.9680	0.9380	0.8910
15					0.9990	0.9970	0.9920	0.9820	0.9630	0.9300

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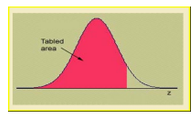

Areas under the Normal curve

Tabulated values are $\mathbf{Pr}(Z \leq z)$

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-3.0	0.0013	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010
-2.9	0.0019	0.0018	0.0018	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014
-2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	0.0020	0.0019
-2.7	0.0035	0.0034	0.0033	0.0032	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026
-2.6	0.0047	0.0045	0.0044	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037	0.0036
-2.5	0.0062	0.0060	0.0059	0.0057	0.0055	0.0054	0.0052	0.0051	0.0049	0.0048
-2.4	0.0082	0.0080	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0066	0.0064
-2.3	0.0107	0.0104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0089	0.0087	0.0084
-2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.0110
-2.1	0.0179	0.0174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143
-2.0	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183
-1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239	0.0233
-1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294
-1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367
-1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455
-1.5	0.0668	0.0655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559
-1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681
-1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823
-1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.1020	0.1003	0.0985
-1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.1230	0.1210	0.1190	0.1170
-1.0	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379
-0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635	0.1611
-0.8	0.2119	0.2090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867
-0.7	0.2420	0.2389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148
-0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451
-0.5	0.3085	0.3050	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.2810	0.2776
-0.4	0.3446	0.3409	0.3372	0.3336	0.3300	0.3264	0.3228	0.3192	0.3156	0.3121
-0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.3520	0.3483
-0.2	0.4207	0.4168	0.4129	0.4090	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859
-0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247
-0.0	0.5000	0.4960	0.4920	0.4880	0.4840	0.4801	0.4761	0.4721	0.4681	0.4641
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990