King Saud University College of Sciences Department of Statistic and Operations Research



# STAT 106: Biostatistics (Exercises)

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# Chapter

# One & Two

# Organizing and Displaying Data & Basic Summary Statistics

#### Answer the following questions:

#### [1] The variable is a

- (a) Subset of the population.
- (b) Parameter of the population.
- (c) Relative frequency.
- (d) Characteristic of the population to be measured.
- (e) Class interval.

#### [2] Which of the following is an example of a discrete variable?

- (a) The number of students taking statistics in this term at KSU.
- (b) The time to exercise daily.
- (c) Whether or not someone has a disease.
- (d) Height of certain buildings.
- (e) Level of education.

#### [3] Which of the following is not an example of a discrete variable?

- (a) The number of students at the class of statistics.
- (b) The number of times a child cry in a certain day.
- (c) The time to run a certain distance.
- (d) The number of buildings in a certain street.
- (e) Number of educated persons in a family.

#### [4] Which of the following is an example of a qualitative variable?

- (a) The blood pressure level.
- (b) The number of times a child brush his/her teeth.
- (c) Whether or not someone fail in an exam.
- (d) Weight of babies at birth.
- (e) The time to run a certain distance.

#### [5] Which of the following is an example of a parameter?

- (a) The mean age of every one living in Saudi Arabia.
- (b)The median of glucose level for all diabetic patients.
- (c) The variance of the birth weights of all babies born in Riyadh.
- (d) All of (a) to (c).
- (e) None of (a) to (c).

# [6] Which of the following is an example of a statistic?

- (a) The mean age of all people in Saudi Arabia.
- (b) The number of children in Saudi Arabia.
- (c) The variance for the birth weights of all babies born in Riyadh.
- (d) The median glucose level for a sample of diabetic patients.
- (e) The type of disease a person has.

#### [7] The continuous variable is a

- (a) Variable with a specific number of values.
- (b) Variable which can't be measured.
- (c) Variable takes on values within intervals.
- (d) Variable with no mode.
- (e) Qualitative variable.

# [8] The width of the interval equals

(a) The number of intervals.

(b) The distance from the lower limit of an interval to the lower limit of the next one.

(c) The distance from the lower limit of an interval to the upper limit of it.

(d) The difference between the frequency of an interval and the frequency of the next one.

(e) The relative frequency.

# [9] Which of the following is an example of a continuous variable?

(a) The number of visitors of the clinic yesterday.

- (b) The time to finish the exam.
- (c) Whether or not the answer is true.
- (d) The number of patients suffering from a certain disease.
- (e) Level of education.

# [10] The y-axis in the graph of the histogram may represents the

- (a) Frequency.
- (b) Relative frequency.
- (c) Either (a) or (b).
- (d) Neither (a) nor (b).
- (e) We can't say.

# [11] The discrete variable is a

- (a) Qualitative variable.
- (b) Variable with no mode.
- (c) Variable takes on values within intervals.
- (d) Variable with a specific number of values.
- (e) Variable which cannot be measured.

# [12] Which of the following is an example of a nominal variable?

- (a) Age of visitors of the clinic.
- (b) The time to finish the exam.
- (c) Whether or not the person is infected by influenza.
- (d) Weight of a sample of girls.
- (e) The number of educated patients.

# [13] The nominal variable is a

- (a) Variable with a specific number of values.
- (b) Qualitative variable which can't be ordered.
- (c) Variable takes on values within intervals.
- (d) Variable with no mode.
- (e) Quantitative variable.

# [14] Which of the following is an example of an ordinal variable?

- (a) The number of persons who are injured in accidents.
- (b) The time to finish the exam.
- (c) Whether or not the medicine is effective.
- (d) Blood type of a sample of patients.
- (e) Socio-economic level.

# [15] The ordinal variable is a

(a) Variable with a specific number of values.

- (b) Variable that takes on values within intervals.
- (c) Qualitative variable which can be ordered.
- (d) Variable with several modes.
- (e) Quantitative variable.

# [16] We calculate statistic instead of parameters because

- (a) Population are too large to measure the parameters.
- (b) Statistics are more popular than parameters.
- (c) Parameters are very large but statistics are small.
- (d) Statistics give more information than parameters.
- (e) We are only interested in values of statistics.

# [17] Which of the following is an example of a statistic?

- (a) The population variance.
- (b) The sample median.
- (c) The population mean.
- (d) The population mode.
- (e) None of these.

# 106 Stat SPSS Exercises

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# **Introduction:**

SPSS is a Windows based program that can be used to perform data entry and analysis and to create tables and graphs. In this course we introduce basic necessary to run SPSS program (version 20). It includes how to create a data file and run descriptive statistics.

# **Opening SPSS:**

Depending on how the computer you are working on is structured, you can open SPSS in one of two ways.

- **1.** If there is an **SPSS shortcut** like this on the desktop, simply put the cursor on it and double click the left mouse button.
- 2. Click the left mouse button on the start button on your screen, then put your cursor on All Programs and left click the mouse. Select SPSS Inc by clicking the left mouse button.

The **dialog box** that appears offers choices of running the tutorial, typing in data, or opening an existing data source. The window behind this is the **Data Editor** window which is used to display the data from whatever file you are using. You could select any one of the options on the start-up dialog box and click **OK**, or you could simply hit **Cancel**. If you hit Cancel, you can either enter new data in the blank Data Editor or you could open an existing file using the **File** menu bar as explained later.

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Data View Variable View		

Click Cancel, and we'll get acquainted with the layout of SPSS.

# Layout of SPSS:

The **Data Editor** window has two views that can be selected from the lower left hand side of the screen.

**Data View** is where you see the data you are using, each white row represents a case, and each column represents a variable.

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**Variable View** is where you can specify the format of your data when you are creating a file or where you can check the format of a pre-existing file. The data in the Data Editor is saved in a file with the extension **.save**.

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# Name

- Each variable name must be unique; duplication is not allowed.
- Start with a letter.
- Variable names cannot end with a period.
- No spaces.

# Type

- The basic types are numeric and string.
- String variables may contain letters or numbers.
- For string values a blank is considered a valid value.
- Numeric operations on the string variables will not be allowed, e.g. finding the mean, variance, standard deviation, etc...

# Width

- The number of characters SPSS will allow to be entered for the variable.
- For a numerical value with decimals, this total width has to include a spot for each decimal, as well as one for the decimal point.

# Decimals

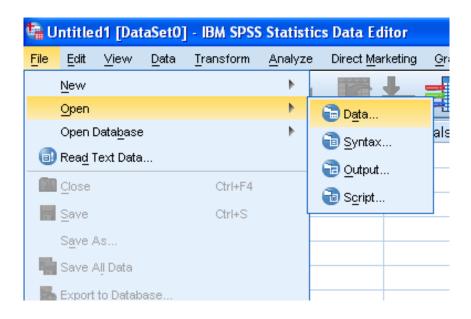
 If more decimals have been entered or computed by SPSS, the additional information will be retained internally but not displayed on screen.

The other most commonly used SPSS window is the **SPSS Viewer** window which displays the output from any analyses that have been run and any error messages. Information from the Output Viewer is saved in a file with the extension **.spv**.

# **SPSS Menus and Icons:**

Now, let's review the most useful menus and icons.

**File** includes all of the options you typically use in other programs, such as open, save, exit. Notice, that you can open or create new files of multiple types as illustrated in the following.



**Transform** includes several options to change current variables. For example, you can change continuous variables to categorical variables, add a constant to variables, etc.

**Analyze** includes all of the commands to carry out statistical analyses and to calculate descriptive statistics.

**Graphs** include the commands to create various types of graphs including box plots, histograms, line graphs, and bar charts.

**Window** can be used to select which window you want to view (i.e., Data Editor, or Output Viewer).

# **Exiting SPSS:**

To close SPSS, you can either left click on the close button  $\boxtimes$  located on the upper right hand corner of the screen or select Exit from the **File** menu.

# Using SPSS in Analyzing Quantitative discrete Data

For quantitative discrete variables one can obtain the frequency distribution table, represent the frequencies using bar chart, calculate different descriptive statistics.

# Example 1:

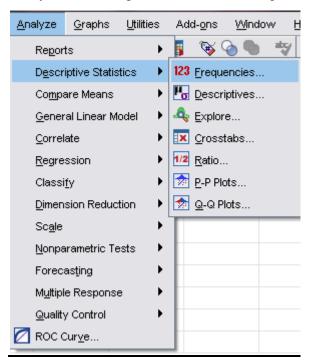
20 women were selected randomly and were asked about the number of children that they have. We get the following data:

5, 2, 4, 2, 3, 2, 4, 2, 3, 1, 2, 4, 3, 2, 3, 5, 2, 4, 1, 2.

This data will be entered vertically and we will name the variable "Nochild".

# To obtain the frequency table we use the following steps:

■ Analyze → Descriptive Statistics → Frequencies.



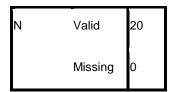
• The frequencies dialog box will appear, select the variable to be depicted in the frequency table by moving them from the left- to the right-hand box.

Frequencies		×
	Variable(s):	Statistics Charts Eormat
☑ Display frequency tables		
OK Pas	te <u>R</u> eset Cancel	Help

Click on OK in the frequencies dialog box. In the SPSS Output Viewer, you will see two tables. The first shows the number of observations (which is 20 and that means that there are no missing observations)

#### Statistics

Nochild



The second table is the frequency table and it lists the values of the variable "nochild" and the frequency of occurrence of each:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	10.0	10.0	10.0
	2.00	8	40.0	40.0	50.0
	3.00	4	20.0	20.0	70.0
	4.00	4	20.0	20.0	90.0
	5.00	2	10.0	10.0	100.0
	Total	20	100.0	100.0	

#### Nochild

#### The output has five columns:

- 1. The first column represent the values the variable "nochild" takes, which takes the value from 1 to 5, this means that the women under the study have number of children between one and five.
- 2. The second column represent the frequencies, i.e. :

Two women have one child. Eight women have two children. Four women have three children. Four women have four children. Two women have five children.

3. The third column "percent" represent the percentages of the frequencies, i.e. :

10 % women have one child.40 % women have two children.20 % women have three children.20 % women have four children.10 % women have five children.

- 4. The fourth column is the "valid percent". In our example this column is equal to the "percent" column since we have no missing observation. If we have a missing observation for example if a women under the study refuses to give any information, or we were unable to reach her and ext, in this cases the "valid percent" column will be different than the "percent" column.
- 5. Finally, the fifth column is the "cumulative percent", it represent the cumulative frequency percentage by adding in succession the percentage frequencies.

# Graphical analysis:

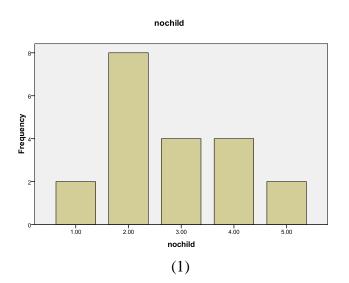
To create a graph, select Analyze  $\rightarrow$  Descriptive Statistics  $\rightarrow$  Frequencies $\rightarrow$  charts.

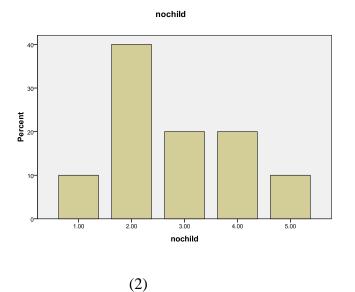
This option creates bar charts, pie charts, or histograms in addition to the frequency table. Specify which chart you want to display by clicking on the Chart button.

For discrete variables we select bar chat as follows:

🔄 Frequencies: Charts
Chart Type
○ N <u>o</u> ne
O Bar charts
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O <u>H</u> istograms:
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Erequencies OPercentages
Continue Cancel Help

In the chart values dialog box, click on frequencies if we want the vertical axis to present the frequencies as shown in (1), click on percentages if we want the vertical axis to present the percentages as shown in (2). Then press continue→ ok.





# **Descriptive Statistics:**

- Convert large sets of data to more meaningful, easier to interpret, chunks or values.
- They summarize the data.
- Ex: mean, median, variance, and range.

SPSS contains a function that will compute many of these statistics.

■ Analyze → Descriptive Statistics → Descriptive.

Frequencies: Statistics	×
Percentile Values	Central Tendency
☑ Quartiles	✓ Mean
Cut points for: 10 equal groups	✓ Median
Percentile(s):	✓ Mode
Add	<u>S</u> um
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Dispersion	Distribution
Std. deviation 🗌 Minimum	Ske <u>w</u> ness
✓ Variance 🗌 Maximum	<u>K</u> urtosis
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Continue Cancel	Help

- From the statistics dialog box, click on the desired statistics that you want to perform (e.g. mean, median, mode, standard deviation, variance, range, etc.), click on the Continue button then ok.
- Central tendency (Mean, Median, Mode).
- Dispersion (Std. deviation, Variance, Range).
- Percentile values (Quartiles).

In the SPSS Output Viewer, you will see the requested statistics:

#### Statistics

Nochild

N	Valid	20
	Missing	0
Mean		2.8000
Median		2.5000
Mode		2.00
Std. Deviation		1.19649
Variance		1.432
Range		4.00
Percentiles	25	2.0000
	50	2.5000
	75	4.0000

As we can see from the table:

The mean for the number of children is 2.8.

The median is 2.5.

The mode is 2.

The standard deviation is 1.1965.

**The variance** is 1.4316.

The range is 4.

The first quartile (The 25th percentile) is 2.

The second quartile (The 50th percentile also known as median) is 2.5.

The third quartile (The 75th percentile) is 4.

# **Continuous Variable**

The following table gives the hemoglobin level (in g/dl) of a sample of 45 apparently healthy men aged 20-24. Find the grouped frequency distribution for the data.

17	17.1	14.6	14	16.1	15.9	16.3	14.2	16.5
17.7	15.7	15.8	16.2	15.5	15.3	17.4	16.1	14.4
15.9	17.3	15.3	16.4	18.3	13.9	15	15.7	16.3
15.2	13.5	16.4	14.9	15.8	16.8	17.5	15.1	17.3
16.2	16.3	13.7	17.8	16.7	15.9	16.1	17.4	15.8

Using SPSS, enter this data and give name of the variable "Hemoglobin",

To make a frequency table , first we have to use the intervals of the hemoglobin level as follows

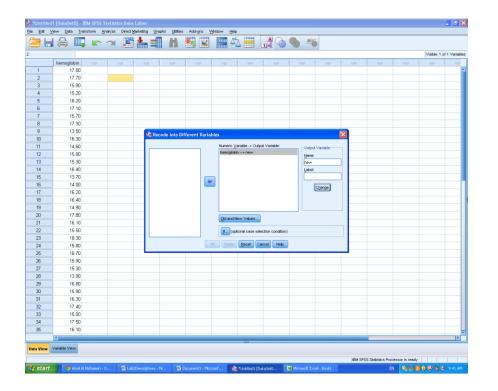
13 - 13.9 , 14 - 14.9 , 15 - 15.9 , 16 - 16.9 , 17 - 17.9 , 18 - 18.9

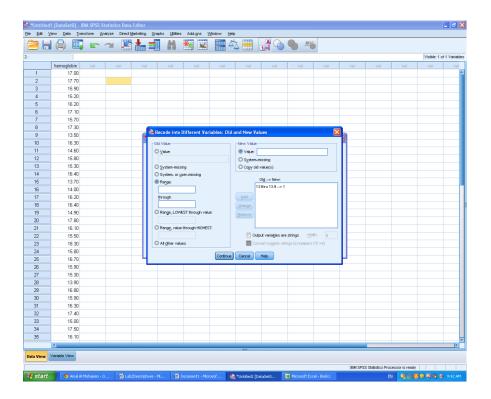
Then follow the steps

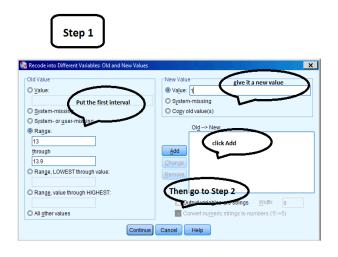
#### **Recoding into different variable:**

- 1. Select Transform --> Recode into different variables
- 2. Move the variable into the "Input Window"
- 3. Type a name for the new variable for example ("New")
- 4. Click "Changes"
- 5. Click "Old and New Values"
- 6. Enter the "old" value and the "new value" and click "Add"
- 7. Click Continue
- 8. Click OK

Then you will note that the new variable ("New") have been added to the data









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# **Frequency table and Chart:**

To analyze the data we need to make the frequency table as follows

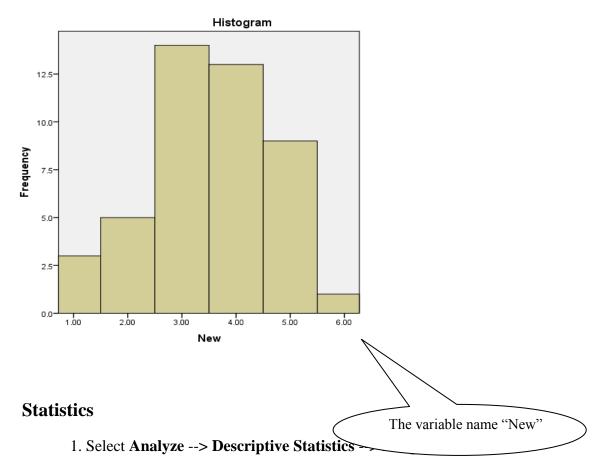
- 1. Select Analyze --> Descriptive Statistics --> Frequencies
- 2. Move **the recoded variable (New)** into the "Variable(s)" window.
- 3. Click "Charts" and put a checkmark next to the histogram.
- 4. Click OK.

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25	16.70	4.00											
20	15:55	3.00											
27	15.30	3.00											

The output shows the Frequency table for the" <u>New</u>" variable as follows:

New	New The variable name "New"									
		Frequency	Percent	Valid Percent	Cumulative Percent					
Valid	1.00	3	6.7	6.7	6.7					
	2.00	5	11.1	11.1	17.8					
	3.00	14	31.1	31.1	48.9					
	4.00	13	28.9	28.9	77.8					
	5.00	9	20.0	20.0	97.8					
	6.00	1	2.2	2.2	100.0					
	Total	45	100.0	100.0						

# And the Histogram chart:



2. Move **only the variable hemoglobin** (the original variable) into the "Variable(s)" window.

3. Click "Statistics" and put a checkmark next to mean, median, mode, variance and St.deviation.

- 🚰 Frequencies X 🔓 Frequencies: Statistics X Variable(s): ntile Value Central Te Statistics. 💑 New 🔗 hemoglobin Quartiles 🗸 Mean Charts. 📝 Me<u>d</u>ian Cut points for: 10 equal groups Mode Percentile(s): Format... 🛅 <u>S</u>um + Bootstrap.. 📃 Values are group midpoints Distribution Dispersion Ske<u>w</u>ness 📝 Std. deviation 📄 Minimum Display frequency tables Image: Mariance E Maximum E Kurtosis OK Paste Reset Cancel Help 🔲 S.<u>E</u>. mean 📃 Range Continue Cancel Help
- 4. Click OK.

# The Statistics output:

Statistic Hemoglobin	The variable name "hemoglobin"
N Vand	45
Missi	ng O
Mean	15.9622
Median	16.1000
Mode	15.80 <sup>a</sup>
Std. Deviation	1.14937
Variance	1.321

a. Multiple modes exist. The smallest value is shown

# Now answer the following:

[1] The variable name is .....

[2] The number of patients with hemoglobin level between (16 - 16.9) is.....

[3] The number of patients with hemoglobin level less than 15 is.....

[4] The number patients with hemoglobin level more than or equal 17 is.....

[5] The relative frequency of patients with hemoglobin level from 13 to

14.9.....

[6] The percentage of patients with hemoglobin level from 15to 16.9 is.....

[7] The mode is.....

# **Review Questions**

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a)5		b)15		c)3			d)2		e)4		f)0		
·													
3. 7	The nui	mber of	wom	en hav	ing 3	3 chile	dren		1		-1		
a)2		b)3		c)5			d)15		e)1		f)6		
	<b>T</b> 1					.1							
	1	cent of y	wome	1	0	ess th				2	f)1		
a)0.2	20	b)0.4		c)0	.0		d)0.13	)	e)0.	5	f)1		
5. 7	The per	centage	of w	omen	havir	19 <b>5</b> 0	r more	e child	lren				
a)99	-	b)40%		c)3		<u> </u>	d)0%		e)20%	/ 0	f)10	0%	
		- /	-	- / -					- / - ·	-			
6. 7	The nui	mber of	wom	en hav	ring t	oetwe	en 2 ai	nd 5 c	hildrer	ı			
a)2		b)3		c)5			d)15		e)1		f)6		
~,=		0,0		0,5			u)15		0)1		1)0		
~/-		0)0		())			u)15		0)1		1)0		
7. 7	The sar	nple mea	an is			I	,		1		1		
7. 7	The san		an is	c)7.	84	I	d)2.8		e)2.5		f)0		
7. 7 a)3		nple mea b)6		c)7.	84	I	,		1		1		
7. 7 a)3 8. 7		nple mea b)6 nple mea		c)7.5			d)2.8		e)2.5		f)0		
7. 7 a)3 8. 7		nple mea b)6		c)7.			,		1		1		
7. 7 a)3 8. 7 a)3	The san	nple mea b)6 nple mea b)2	dian i	c)7.5			d)2.8		e)2.5		f)0		
7. 7 a)3 8. 7 a)3 9. 7	The san	nple mea b)6 nple mea	dian i	c)7.5	5		d)2.8	3,5	e)2.5		f)0	5	
7. 7 a)3 8. 7 a)3 9. 7	The san	nple mea b)6 nple mea b)2 nple moa	dian i	c)7. is   c)3.	5		d)2.8 d)7.5	3,5	e)2.5		f)0	5	
7. 7 a)3 8. 7 a)3 9. 7 a)6	The san	nple mea b)6 nple mea b)2 nple moa	dian i de is	c)7. is c)3.	5		d)2.8 d)7.5 d)0,1,3	,	e)2.5		f)0	5	
7. 7 a)3 8. 7 a)3 9. 7 a)6 10. 7	The san The san	nple mea b)6 nple mea b)2 nple moa b)2,4	dian i de is ndard	c)7. is c)3. c)2,3	5		d)2.8 d)7.5	,	e)2.5	mode	f)0	5	
7. 7 a)3 8. 7 a)3 9. 7 a)6 10. 7 a)16	The san The san The san	nple mea b)6 nple mea b)2 nple moa b)2,4 nple star b)3.45	dian i de is ndard	c)7. is c)3. c)2,3	5 3,4 tion i .364		d)2.8 d)7.5 d)0,1,3	,	e)2.5	mode	f)0 f)1. f)5	5	
7. 7 a)3 8. 7 a)3 9. 7 a)6 10. 7 a)16 11. 7	The sam The sam The sam	nple mea b)6 nple mea b)2 nple moa b)2,4 nple star b)3.45	dian i de is ndard i7 of va	c)7. is c)3. c)2, devia c)1	5 3,4 tion i .364 1 is		d)2.8 d)7.5 d)0,1,3 d)1.79	96	e)2.5 e)2.5 e)nc	9 mode 859	f)0 f)1. f)5	5	
7. 7 a)3 8. 7 a)3 9. 7 a)6 10. 7 a)16 11. 7	The san The san The san	nple mea b)6 nple mea b)2 nple moa b)2,4 nple star b)3.45	dian i de is ndard i7 of va	c)7. is c)3. c)2,3	5 3,4 tion i .364 1 is		d)2.8 d)7.5 d)0,1,3	96	e)2.5 e)2.5 e)nc	mode	f)0 f)1. f)5	5	
7. 7 a)3 8. 7 a)3 9. 7 a)6 10. 7 a)16 11. 7 a)18	The sam The sam The sam 66 The coe	nple mea b)6 nple mea b)2 nple moa b)2,4 nple star b)3.45 efficient b)15%	dian i de is ndard 57 of va 6	c)7. is c)3. c)2, devia c)1	5 3,4 tion i .364 1 is		d)2.8 d)7.5 d)0,1,3 d)1.79	96	e)2.5 e)2.5 e)nc	9 mode 859	f)0 f)1. f)5	5	
7. 7. 1 a)3 8. 7 a)3 9. 7 a)6 10. 7 a)16 11. 7 a)18 12. 7	The sam The sam The sam 66 The coe	nple mea b)6 nple mea b)2 nple moa b)2,4 nple star b)3.45 efficient b)159 st quartil	dian i de is ndard 57 of va 6	c)7. is c)3. c)2,3 devia c)1 uriation c)12	5 3,4 tion i .364 1 is 3.429		d)2.8 d)7.5 d)0,1,3 d)1.79 d)1.79	96	e)2.5 e)2.5 e)nc e)nc	0 mode 859 5.39%	f)0 f)1. f)5 f) f)1	5	
7. 7. 1 a)3 8. 7 a)3 9. 7 a)6 10. 7 a)16 11. 7 a)18 12. 7	The sam The sam The sam 66 The coe	nple mea b)6 nple mea b)2 nple moa b)2,4 nple star b)3.45 efficient b)15%	dian i de is ndard 57 of va 6	c)7. is c)3. c)2,3 devia c)1 uriation c)12	5 3,4 tion i .364 1 is		d)2.8 d)7.5 d)0,1,3 d)1.79	96	e)2.5 e)2.5 e)nc	0 mode 859 5.39%	f)0 f)1. f)5 f) f)1	5	
7. 7 a)3 8. 7 a)3 9. 7 a)6 10. 7 a)16 11. 7 a)18 12. 7 a)1	The sam The sam The sam 6 The coe 5.59% The firs	nple mea b)6 nple mea b)2 nple moa b)2,4 nple star b)3.45 efficient b)159 st quartil	dian i de is ndard 57 of va 6 e is	c)7. is c)3. c)2, devia c)1 uriation c)12	5 3,4 tion i .364 1 is 3.429	S 6	d)2.8 d)7.5 d)0,1,3 d)1.79 d)1.79	96	e)2.5 e)2.5 e)nc e)nc	0 mode 859 5.39%	f)0 f)1. f)5 f) f)1	5	

Q19) Suppose we measure the number of times a child has been to a doctor in the past month .For a sample of Saudi children age 2-6 years

$\frac{2}{1}$	<u>3</u> 4	0	5	6	2	2	5	4	1
ing SPSS,	answer the fo	ollowing	questi	ons					
1. The ty	pe of the var	iable is							
a)qualitat	ive b)contir	nuous	c)num	ber d)	normal	e)dis	screte	f)st	atistic
2. The sa	ample size								
a)2	b)12	c)6		d)0		e)1		f)3	
<ol> <li>The number of children who has been to a doctor less than 3 times in the pasmonth is</li> </ol>									
a)1	b)2	c)6		d)7		e)12		f)5	
•	ercent of child					or in th	e past :		
a)0.08	b)0	c)0.2	2	d)0.6		e)1		f)0.	12
	ample mean i			1		1		1	
a)2.917	b)1.881	c)3	8.538	d)3		e)2		f)2.	5
6. The sa	ample mediar	is							
a)2.917	b)1.881	c)3	8.538	d)3		e)2		f)2.	5
7. The sa	ample mode i	S							
a)2.917	b)1.881	c)3	.538	d)3		e)2		f)2.	5
8. The sa	ample standar	d deviat	ion is						
a)2.917	b)1.881	c)3	.538	d)3		e)2		f)2.	5
9. The co	pefficient of v	variation	is						
a)0%	b)64.49%	d)15	.62%	e)66.	39%	f)100	%	d)10	).62%
10. The th	nird quartile is	3							
a)2	b)2.5	c)3.5	5	d)4		e)4.7	'5	f)5	
11. The value that 50% of data before is									
a)2	b)2.5	c)3.5		d)4		e)4.7	'5	f)5	
/						. /		/	

Q20) Here the weights in kg of 50 college students

\_

				-	-	-			-	-		-				
42	62	46	54	41	37	54	44	32	45	47	50	58	49	51	42	46
37	42	39	54	39	51	58	47	64	43	48	49	48	49	61	41	40
58	49	59	57	57	34	56	38	45	52	46	40	63	41	51	41	
Use	these	e class	s inte	rvals	to ob	tain f	reque	ency	table a	and a	nswei	r the f	follo	wing o	questi	ons
31-<	<35						51	-<55	56-<	<60	61-<	65				
		he typ	1			1					-					
	a)qualitative b)continuous c)number d)normal e)discrete f)statistic															
	2. The sample size															
	a)5		b)	15		c)3		Ċ	l)50		e)4			f)0		
L						,			,		. ,			,		1
	3. T	he nu	mber	of st	udent	s hav	e wei	ight b	oetwee	en 36	and 4	45 kg	is			
	a)6		b)	12		c)18		d	)20		e)5	0		f)16		
			•		•											
	4. H	ow m	any s	stude	nts ha	ive w	eight	51 k	g or n	nore						
	a)6	)6 b)12 c)18 d)20 e)50					f)16									
_	5. W	hich	weig	ht cla	iss ha	s the	lowe	st pei	rcenta	ge of	stude	ents				
	a) 31-	-<35	b)	36-<	40	c) 41	l-<45	Ċ	l) 46-«	<50	e) 5	51-<5	5	f) 56-	<60	
					nat a				ight l			<u> </u>	S			
	a)0.04	4	b)	)1		c)0.4	ŀ	d	)0.16		e)0	.18		f)0		
	7. T	he sai	nple	mean	ı is											
	a )47.		-	47.94		c)7.	.97		d)0		e)6	3.53		f)50		
	8. T	he sai	nple	medi	an is				,							
	a )47.	50	<b>b</b> )	47.94	1	c)7	.97		d)0		e)6	3.53		f)50		
	9. T	he sai	nple	mode	e is				,							
	a)45		b):			c)no	mode	e d	)30		e)4	1,49		f)65		
_	10. T	he sai	nple	stand	lard d	eviati	ion is	•								
	a )47.	50	b)-	47.94	Ļ	c)7.	97		d)0		e)6	3.53		f)50		
		he co	offici	ent o	f vari	ation	is	·								
_	a)47.			16.62		1	.97%		d)0		e)6	3.539	6	f)509	%	
	u / <del>1</del> /.	5070	10)	10.02	270	0)1	.7170		4,0		0,0	5.557	v	1,507	U	

# Chapter 1 & Chapter 2

# الأسئلة النظرى

Q21: For a sample of children with frequent toothache, we measure the number of times a child has been to a doctor in the last year as follows:

Number of times	1	2	3	4	5
number of children	15	10	8	4	3

[1] The name of the variable.....

[2] The type of the variable .....

[3] The sample size.....

[4] The number of children have been to a doctor 3 times is.....

[5] The number of children have been to a doctor from 2 to 4 times is.....

[6] The relative frequency of children have been to a doctor 2 times is.....

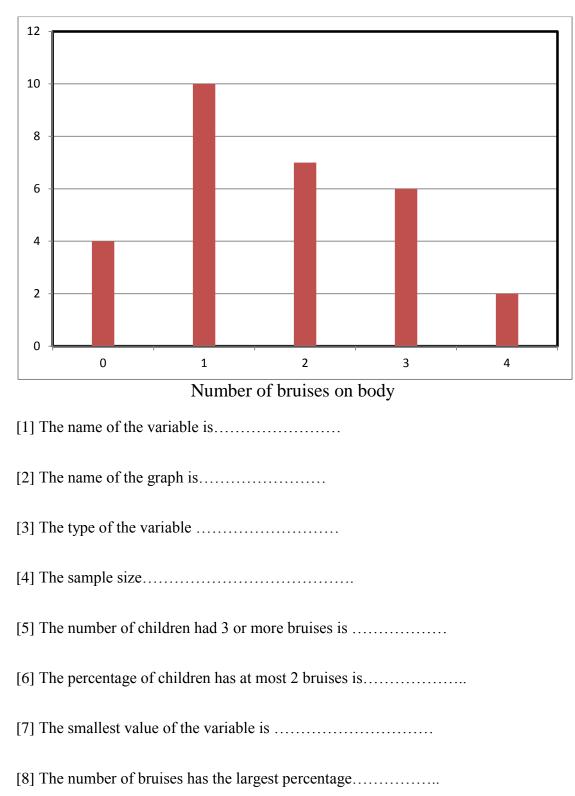
[7] The percentage of children has been to a doctor less than 3 times is .....

.....

[8] The largest value of the variable is .....

[9] The number of times a child has been to a doctor with the highest Percentage is

.....



Q22: For a sample of children age 5, we obtain the following graph

[9] The mode is .....

Age	Frequency	Relative frequency	cumulative
			frequency
15 - 20	3	0.05	3
21 - 26	12		15
27 - 32	18	0.3	33
33 - 38		0.283	50
39 - 44	10	0.166	60
Total	60		

Q23: For a sample of 60 women having children, we measure the age(in year)

Complete the table, then answer

[1] The variable is .....

[2] The number of women with age between (33 - 38) is .....

[3] The number of women with age less than or equal 26 is .....

[4] The number of women with age more than 32 is .....

[5] The relative frequency of women with age from 21 to 38 is .....

[6] The percentage of women with age from 33 to 44 is .....

[7] The age class had the largest percentage is .....

[8] The width of the interval is .....

Q24: for the sample of 200 mothers at delivery ,we measure a certain serum level (in Mg/I).

Time with doctor	Frequency	Relative frequency	cumulative
			frequency
5 - 24	50	0.25	50
25 - 44	63	0.315	113
45 - 64		0.305	174
65 - 84	24		198
85 - 104	2	0.01	200
Total	200		

Complete the table, then answer

[1] The variable is .....

[2] The number of mothers with time with doctor between (25-84) is

.....

[3] The number of mothers with time with doctor less than or equal 64 is

.....

[4] The number of mothers with time with doctor more than 44 is

.....

[5] The relative frequency of mothers with time with doctor from 65 to 84 is

.....

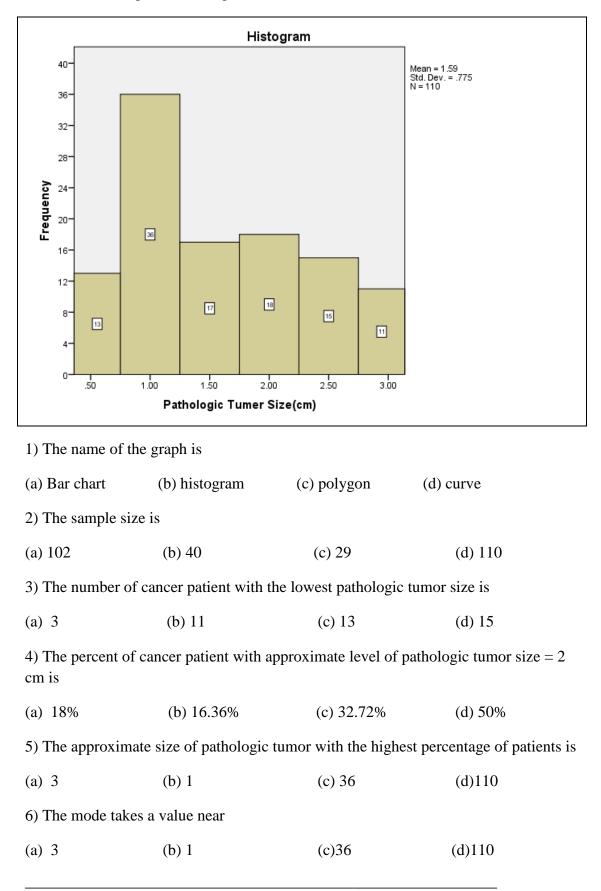
[6] The percentage of mothers with time with doctor more than or equal 45 is

.....

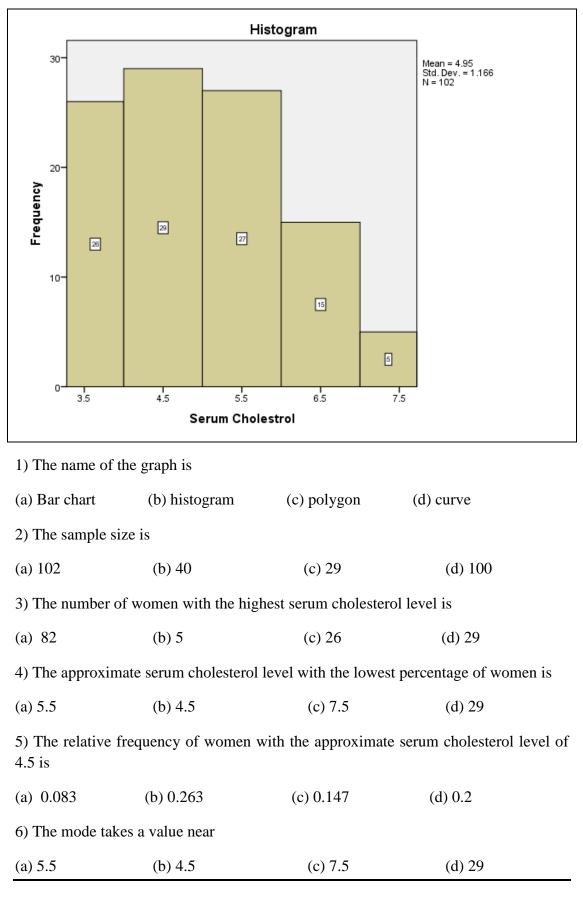
- [7] The mode is .....
- [8] The sample size is .....

[9] The width of the interval is .....

Q25: The following graph shows the frequency distribution of pathologic tumor size (In cm) for a sample of cancer patient



Q26: For the sample of Saudi women ,we obtain the following graph for the serum cholesterol level(in mmol/I)



Q27: The following table gives the results of a survey to study the weights of students of two schools

	Mean weights	Standard deviation
School- A	30	6
School – B	60	10

Determine whether the weights of students from school -A are more than the variable weights of students from school -B

(a) School-A more than School-B (b) School-B more than School-A (c) cannot say

Q28: If we measure the hemoglobin level and RBC for a sample of women

	Mean weights	Standard deviation
hemoglobin level	13.7	1.2
RBC	4.5	0.5

Determine which one of them is less variable?

(a) hemoglobin level (b)RBC (c)Same variable

Q29: For a sample of 15 women, we have the following results of the number of their	
children	

	Ν		N St.			Perce	Percentiles		
	valid	missing	Mean	deviation	Mode	25	50	75	Range
Number of									
children	15	0	2.8	1.859	4	2	3	4	6

Then,

1) The type of the variable is							
(a) qualitative		(b) continuous (c		(c) discrete	(d)statisti	d)statistic	
2) The sample mean is							
(a) 3	(b) 2.8	(c) 4	(d) 1.3	859 (e)	3.456 (f) 15	(h) 6	
3) The sample mode is							
(a) 3	(b) 2.8	(c) 4	(d) 1.3	859 (e)	3.456 (f) 15	(h) 6	
4) The sample standard deviation is							
(a) 3	(b) 2.8	(c) 4	(d) 1.3	859 (e)	3.456 (f) 15	(h) 6	
5) The sample variance is							
(a) 3	(b) 2.8	(c) 4	(d) 1.3	859 (e)	3.456 (f) 15	(h) 6	
6) The sample median is							
(a) 3	(b) 2.8	(c) 4	(d) 1.	859 (e)	3.456 (f) 15	(h) 6	
7) The coefficient of variation is							
(a) 18.59% (b) 15		% (c) 66.39%		(d) 12	(d) 123.42% (e) 100%		

Q30: We measure the number of asthma cases seen in the past months for a sample of hospital

	N valid	missing	Mean	variance	Mode	Median
number of asthma cases	12	0	23.25	128.94	20	20

Then,

1) The type of the variable is

(a) qualitative		(b) continuous	(c) disc	rete (d)s	(d)statistic		
2) The san	nple mean is						
(a) 12	(b) 23.25	(c) 128.94	(d) 20	(e) 11.355	(f) 20		
3) The san	nple mode is						
(a) 12	(b) 23.25	(c) 128.94	(d) 20	(e) 11.355	(f) 20		
4) The san	nple standard	deviation is					
(a) 12	(b) 23.25	(c) 128.94	(d) 20	(e) 11.355	(f) 20		
5) The san	nple variance	eis					
(a) 12	(b) 23.25	(c) 128.94	(d) 20	(e) 11.355	(f) 20		
6) The san	6) The sample median is						
(a) 12	(b) 23.25	(c) 128.94	(d) 20	(e) 11.355	(f) 20		
7) The coefficient of variation is							
(a) 204.76	% (b)	48.84%	(c) 554.5%	(d) 84.8	2%		

## Chapter

### Three

### Some Basic Probability Concepts

O31: For any two events, A and B:  $[1] P(A \cap B) =$ (a) P(A)P(B)(b)  $P(B) - P(B \cap A^c)$ (c) P(A) + P(B)(d)  $P(A) - P(B \cap A^c)$ (e) none of these  $[2] P(A \cup B) =$ (a) ] (b)  $1 - P(A^c \cap B^c)$ (c) P(A) + P(B)(d) P(A)P(B)(e) none of these [3] If A and B are independent, then P(B|A)= (a) P(B)(b)  $P(B \cap A)$ (c) P(A)(d)  $P(B \cap A)/P(B)$ (e) none of these  $[4] P(B) = P(A \cap B) +$ (a)  $P(B^c)$  (b)  $P(A \cup B)$  (c)  $P(A^c \cap B)$  (d) P(A - B) (e) none of these [5]  $P(A \cap B) = 0$ , then we know that A and B are (a) empty (b) disjoint (c)independent (d) events (e) none of these

Q32: if  $\Omega = \{A, B, C, D\}$ , and the outcomes are equally likely, then [1] P(A)= (a) 1 (b) 1/2 (c) 1/4 (d) 1/3 (e) none of these [2] 2P(D)= (a) P(A)-P(B) (b) P(A)/2 (c) P(C) (d) P(A)+P(B) (e) none of these

Q33:A and B are events defined on the same sample space. If  $P(\overline{A}) = 0.6$ , P(B) = 0.5 and  $P(A \cap B) = 0.1$ ,

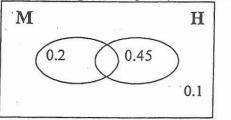
Find: (i)  $P(A \cup B)$ (ii)  $P(A \cap \overline{B})$ (iii)  $P(\overline{A} \cap B)$ (iv)  $P(\overline{A} \cap \overline{B})$ 

Q34: If  $P(A \cap \overline{B}) = 0.3$ ,  $P(A \cap B) = 0.2$  and  $P(\overline{A} \cap \overline{B}) = 0.1$ , Find: (i) P(A)

(ii)  $P(\overline{A} \cap B)$ 

(iii)  $P(A \cup B)$ 

Q35: In a population of adult patients with a certain disease, let M = "is a man" and H= "has a heart disease". We have the following (incomplete) Venn diagram:

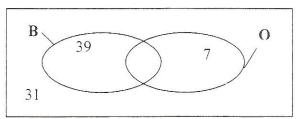


If we randomly choose one patient, find the probabilities that the patient chosen:

[1] is a man and had a heart disease:

(a) 0.75(b) 0.20 (c) 0.25 (d) 0.45 (e) 0.10 [2] is a women : (a) 0.55 (b) 0.70 (c) 0.45 (d) 0.10 (e) 0.80 [3] does not have a heart disease : (a) 0.55 (b) 0.10 (c) 0.65 (d) 0.30 (e) 0.70 [4] is a man or has a heart disease : (a) 0.45 (b) 0.70 (c) 0.55 (d) 0.25 (e) 0.90 [5] she has heart disease : (a) 0.45(b) 0.55 (c) 0.6429 (d) 0.8182 (e) 0.70 [6] if we know that the patient has heart disease . what effect does this have on the probability that he is a man? (a) decreases (b) increases (c) has no effect (d) it is the probability of a man (e) person has heart disease

Q36: From a population of 80 babies in a certain hospital the last month, let B = "is a boy" and O = "is over weight". We have the following incomplete Venn diagram:



If we randomly choose a baby born in this hospital, find the probabilities that the baby chosen: [1] is a boy

	(a) 0.4875	(b) 0.525	(c) 0.6125	(d) 0.9286	(e) 0.5
[2] is	not an over wei (a) 0.875	ght baby (b) 0.9125	(c) 0.0875	(d) 0.4875	(e) 0.3875
[3] is	a girl or an over (a) 0.475	r weight baby (b) 0.125	(c) 0.875	(d) 0.5125	(e) 0.6125
[4] is	an over weight (a) 0.0714	baby knowing (b) 0.525	that he is a boy (c) 0.125	(d) 0.0375	(e) 0.3

Q37: The following table classifies 400 people according to their smoking habits and whether or not they have cancer

	Smoker (A)	Non-Smoker( $\overline{A}$ )
Has cancer (C)	200	50
Dose not have cancer( $\overline{C}$ )	50	100

#### If an individual is selected at random from this group, find the probability that he/she is

(a) a smoker and has cancer,

(b) a smoker or has cancer

(c) a non-smoker or has cancer

(d) If an individual is selected at random from the group, find the probability that the person selected:

(i) has cancer given that he/she is a smoker.

(ii) is not a smoker given that he/she dose not have cancer

(e) determine whether smoking and having cancer are independent

# Chapter

## Four

### **Probability Distribution**

Q38: If X is a discrete random variable with probability distribution:

Х	0	1	2	3	4	5
P(X=x)	0.05	0.15	0.15	0.25	0.3	0.1

1) What value of X has	the highest pro	obability? (a)	1 (b) 2	(c) 3 (d) 4	(e) 5
2) $P(X < 3) = (a) 0.25$	(b) 0.35	(c) 0.4	(d) 0.6	(e) 0.65	
3) P $(1 \le X \le 4) = (a) 0.1$	(b) 0.15	(c) 0.3	(d) 0.55	5 (e) 0.1	85
4) $\mu$ = (a) 2.5 (b) 2.9	(c) 3.0 (d) 3	3.5 (e) 11.3	1		

Q39: For a population of families, x = the number of children in primary school. We randomly choose one and the cumulative distributed is given below:

				A	P(A	$\geq X$ )	
				0	0.1	12	
				1	0.3	36	
				2	0.1	72	
				3	0.9	95	
				5	1		
$(1) \cdot P(X = 2) =$	(a) 0.24	(b) 0.36	(c) 0.48	(d) (	0.64	(e) 0.7	2
(2) $P(X = 3) =$	(a) 0.23	(b) 0.36	(c) 0.47	(d) (	).59	(e) 0.9	5
(3) $P(1 < X \le 4) =$	(a) 0	(b) 0.36	(c) 1.08	(d) (		(c) 0.7	
(4) The expected	number of ch	nildren in prin	nary school	for a fan	nily from	n this pop	oulation:

(4) The expected number of children in primary school for a failing from this popul

(5) (a) 1.9 (b) 1.09 (c) 0.19 (d) 9.65 (e) we can't find it

Q40: For a probability of children, X= the number of sweet eaten on a certain day. We randomly chose a child and the number of sweets he ate was from 0 to 4 sweets. The following probabilities are given: P(X=0) = 0.00, P(X=2) = 0.21, P(X=2) = 0.62

 $P(X=0) = 0.08, P(X=2) = 0.31, P(X>2) = 0.42, P (1 < X \le 3) = 0.63.$ Then, [1] P(X=1) = (a) 0.09 (b) 0.23 (c) 0.42 (d) 0.19 (e) 0 [2] P(X=3) = (a) 0.68 (b) 0.22 (c) 0.32 (d) 0.51 (e) 0 [3]  $P(X\le 2) = (a) 0.92$  (b) 0.58 (c) 0.99 (d) 0.27 (e) 1 [4] The expected number of sweets eaten daily by a child from this population is: (a) 1 (b) 2 (c) 0.217 (d) 4.7089 (e) 2.17

Q41: In a large population of people, 25% of them use dental floss regularly. If we randomly choose 15 of these people and let X = the number of these 15 people who use dental floss regularly, then

[1] The probability distribution of X, is P(X = x) =

(a) 
$$\binom{15}{x} (0.75)^x (0.25)^{15-x}$$
 (b)  $\binom{15}{x} (0.25)^x (0.75)^{15-x}$  (c)  $\binom{25}{x} (0.15)^x (0.85)^{25-x}$   
(d)  $e^{-15} (15)^x / x !$  (e)  $e^{-0.25} (0.25)^x / x !$ 

[2] The values that x takes are:

(c) 0,1,...,15 (a) 1,2,...,15 (b) 1,2,...,25 (e) 0,1,...,∞ (d) 0,1,...,25 [3] P(X = 4) =(c) 0.0202 (b) 0.2252 (a) 0.0634 (e) none of these (d) 0.1651 [4] The probability that at most one person uses dental floss regularly? (c) 0.0668 (b) 0.0134 (a) 0.9198 (e) none of these (d) 0.0802 [5] The expected value of X =

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	(a) 3.75 (b)	) 11.25 (c) 15	(d) 25	(e) none of these	
	Q42: In a large population of	young Arab child	ren, 11 percent	of them have trouble saying	
5	ome letters. If we randomly cl	hoose 8 children ar	$1 \mathbf{d}  \mathbf{let}  \mathbf{X} = \mathbf{the}  \mathbf{n}$	umber of these 8 children who	
	rave trouble saying some letter				
	1] The probability distribution of	of X, is $P(X = x) = -$			
	(a) $\binom{8}{x}$ (0.11) <sup>x</sup> (0.89) <sup>8-x</sup>	(b) $\binom{11}{x}$ (0.08)	$(0.92)^{11-x}$	(c) $\binom{8}{x} (0.11)^{x} (0.89)^{8-x}$	
	(d) $e^{-11}(11)^x / x!$	(e) $e^{-8}(8)^x / x$	1		
[	2] The values that x takes are:				
	(a) 1,2,,8	(b) 1,2,,11		(c) 0,1,,89	
	(d) 0,1,,8	(e) 0,1,,∞			
[	3] $P(X = 4) =$				
	(a) 0.057	(b) 0.0064		(c) 0.0303	
	(d) 0.0075	(e) none of thes	e		
E	4] The probability that at most t	here are one childre	n who have trou	ble saying some letters =	
	(a) 0.7829	(b) 0.2171		(c).0.3892	
	(d) 0.3937	(e) none of thes	e		
[.	5] The expected value of $X =$				
(;	a)11 (b) 8 (c)	) 0.88	(d) 7.12	(e) none of these	

Q43: At a certain hospital, X = the number of kidney transplants in a year has a Poisson(5.4) distribution.

[1] The formula for P(X = 4) is: (a)  $\binom{4}{x}(0.54)^{x}(0.46)^{4-x}$  (b)  $e^{-4}(5.4)^{4}/4!$  (c)  $\binom{4}{x}(0.46)^{x}(0.54)^{4-x}$ (d)  $e^{-4}(4)^{5.4}/4!$  (e)  $e^{-5.4}(5.4)^{4}/4!$ [2]  $P(X \ge 2) =$ (a) 0.0045 (b) 0.9711 (c) 0.54 (d) 0.0289 (e) none of these [3] What is the distribution of Y = the number of kidney transplants in 3 years. (a) Poisson(1.87) (b) Poisson(3) (c) Poisson(16.2) (d) Poisson(8.4) (e) Binomial(3,0.54)

Q44: in a certain population, it is known that the average number of deaths per year from cancer is 3 if the number of deaths from this disease has the Poisson distribution, find the probability that, from this disease, there are:

(a) not more than 2 deaths in a year,

(b) at least two deaths in a year,

(c) exactly 3 deaths in a year,

(d) exactly 4 deaths in 4 months.

Q45: At a certain hospital in Riyadh, X = the number of food poisoning cases in a month has a Poisson(5.6) distribution.

[1] The possible v (a) $x = 0,1$ (d) $x = 0,1$	,2	(b) x = 0,1 (e) x = 1,2		(c) $x = 1, 2,, 30$
[2] $P(X = 7) =$ (a) 0	(b) 0.0312	(c) 0.1267	(d) 0.4109	(e) none of these
[3] What is the ex	pected number o	f food poisoni	ng cases in 3 mo	onths?

11000 10 0110 0	 r	0			
(a) 0.56	(b) 1.87			(c) 5.	6
(d) 7.47	(e) 16.8	8	100		

[4] What is the distribution of Y = the number of food poisoning cases in 1/2 a month?

(a) Poisson(0.373) (d) Poisson(11.2) (b) Poisson(2.8) (e) Poisson(84) (c) Poisson(5.6)

Q46: In a certain population, an average of 6 new cases of breast cancer are diagnosed each year. If the number of new diagnosed cases of this disease in the population follows the Poisson distribution, find the probability that, in this population, there are:

(a) no new cases of the disease in a year,

(b) at most two new cases of the disease in 6 months.

#### Q47: If Z a standard normal distribution, then

[1] P(z > 1.34) =	(a) 0.0901	(b) 0.34	(c) 0.3669	(d) 0.6331
$[2] P(z \le -0.78) =$	(a) 0.0375	(b) 0.2177	(c) 0.4681	(d) 0.7823
$[3] P(-1.89 \le z < 2.56) =$	(a) 0.7486	(b) 0.9112	(c) 0.9654	(d) 0.9929

Q48: If Z is N(0,1), find (a)  $P(Z \le 1.36)$  (b)  $P(Z \ge 2.4)$  (c) P(Z < 1.81)(d) P(Z > 2.7) (e) P(-1.2 < Z < 2.1)(f) P(Z = 1.4) (g) P(-2.36 < Z < 1.45)

Q49: Let Z have the standard normal distribution. The value of z such that  $P(Z \le z) = \alpha$ , is defined by  $z_{\alpha}$ . Find the following z values:

(a)  $z_{0.5}$  (b)  $z_{0.95}$  (c)  $z_{0.025}$  (d)  $z_{0.975}$ 

Q50: In population of people, X = the body mass index (in kg/ $m^2$ ) is normally distributed with mean  $\mu = 25$  and standard deviation  $\sigma = 2$ . For a randomly chosen person, [1] P(X < 21) =

(a) 0.9772	(b) 0.4772	(c) 0.9821	(d) 0.0228	(e) none of these
[2] $P(19 < X < 28)$	) =			
(a) 0.9332	(b) 0.9319	(c) 0.9345	(d) 0.5332	(e) none of these
[3] The value of x	such $P(X > x) =$	0.2578 is:		
(a) 0.65	(b)1.3	(c) 26.3	(d) 23.7	(e) none of these

Q51: In a population of heat stroke victims, X = the cooling time (in min.) is normally distributed with  $\mu = 40$  and  $\sigma^2 = 100$ . For a randomly chosen victim,

LIII	$(\Lambda \simeq 25)^{-1}$					
	(a) 0.0062	(b) 0.0668	(c) 0.4404	(d) 0.5596	(e) 0.9332	
[2] <i>I</i>	$P(20 \le X \le 70)$					
	(a) 0.1587	(b) 0.8413	(c) 0.9544	(d) 0.9759	(e) 1.0215	
[3] T	he value of x su	rch P(X > x) =	0.791 is:			
	(a) 0.81	(b) 18.4	(c) 31.9	(d) 47.9	(e) 48.1	

# Chapter

### Five

**Statistical Inference** 

Q52: Answer 1 to 3 directly from the question. Answer 4 to 6 using new information as given Statement: In a sample of 49 Saudis living in villas, the mean Vitamin D level was 16 with a variance of 12. Assume that the distribution is normal. Question: Find and interpret a 90% confidence interval for the average.

[1] The number 12 is:

(a)  $S^{2}$ (b) S (c)  $\sigma^2$ (d)  $\sigma$  (e)  $\mu_0$ 

[2] the value of  $\alpha$  is:

(c) 0.45 (d) 0.95 (e) unknown (a) 0.01 (b) 0.10 [3] The assumptions are:

(a) normal,  $\sigma^2$  known (b) not normal,  $\sigma^2$  known, n large

(c) normal,  $\sigma^2$  unknown (d) not normal,  $\sigma^2$  unknown, n large

(e) none of these

[4] Suppose that the assumption are "normal,  $\sigma^2$  known" then the correct formula to answer the question is:

(a) 
$$Z = \frac{\bar{X} - \mu_0}{\sigma / \sqrt{n}}$$
 (b)  $\bar{X} \pm z_{1-\frac{\sigma}{2}} \sigma / \sqrt{n}$  (c)  $T = \frac{\bar{X} - \mu_0}{s / \sqrt{n}}$  (d)  $\bar{X} \pm t_{1-\frac{\sigma}{2}, n-1} s / \sqrt{n}$  (e)  $\bar{X} \pm z_{1-\frac{\sigma}{2}} s / \sqrt{n}$ 

[5] using  $\overline{X} \pm z \frac{s}{\sqrt{n}}$ , calculate the confidence interval with  $\alpha = 0.05, s = 3.8$  and n = 49(a)(14.9066, 17.0934) (b) (14.9096, 17.3904)

(e) (15.3041, 16.6959) (d) (15.107, 16.893) 

(c) (14.936, 17.064)

[6] If a 90% confidence interval for the average gives(15.2, 16.9), what part is missing in the indicated place in the interpretation below:

Interpretation: we are 90% sure that the (a) the (b) Vitamin D level (c) of (d) Saudis living in villa between 15.2 and 16.9.

(a) If the mean was 16	(b) average (c) with a variance of 12
(d) 49	(e) all of these are missing

**Q53:** The random variable X, representing the lifespan of a certain light bulb is distributed normally with mean of 400 hours ,and standard deviation of 10 hours.

- **1.** What is the probability that a particular light bulb will last for <u>more than 380</u> hours?
- 2. What is the probability that a particular light bulb will last for exactly 399 hours?
- **3.** What is the probability that a particular light bulb will last for between 380 and 420 hours?
- **4.** The mean is .....
- 5. The variance is.....
- 6. The standard deviation.....

**Q54:** The tensile of a certain type of thread is approximately normally distributed with standard deviation of 6.8 Kg. A sample of 20 pieces of the thread has an average strength of 72.8 Kg. Then

1. A point estimate of the population mean of tensile strength  $\mu$  is

(a) 72.8 (b) 20 (c) 6.8 (d) 46.24 (e) none of these

- **2.** A 98% Confident interval for mean of tensile strength  $\mu$ , the lower bound equal
  - to:

(a) 68.45 (b) 69.26 (c) 71.44 (d) 69.68 (e) none of these

- **3.** A 98% Confident interval for mean of tensile strength  $\mu$ , the upper bound equal
  - to:

(a) 74.16 (b) 77.15 (c) 75.92 (d) 76.34 (e) none of these

**Q55:** Suppose that we are interested in making some statistical inferences about the mean  $\mu$  of normal population with standard deviation 2.0. Suppose that a random sample of size n = 49 from this population gave the sample mean 4.5

**1.** The distribution of  $\overline{X}$  is

(a) N(0,1) (b) t(48) (c) N( $\mu$ ,(0.02857)<sup>2</sup>) (d) N( $\mu$ ,2.0)

**2.** A good point estimate for  $\mu$  is

<b>(a)</b> 4.5	<b>(b)</b> 2	(c) 2.5	( <b>d</b> ) 7	<b>(e)</b> 1.125
3. Assumptio	ns is			
( <b>a</b> ) Normal, σ	known	(b)	Normal, σ unkn	own
(c)not Norma	l, σ known	(d)	not Normal, $\sigma$ u	ıknown
<b>4.</b> A 95% cor	nfident interv	al for μ is		

(a) (3.44,5.56) (b) (3.34,5.66) (c) (4.444, 4.556) (d) (3.94,5.05) (e) (3.04,5.96)

**Q56:** An electronics company wanted to estimate in monthly operating expenses riyals ( $\mu$ ). Assume that the population variance equals 0.584.

Suppose that a random sample of size 49 is taken and found that the sample mean equals 5.47. Find

- (1) Point estimate for  $\mu$
- (2) The distribution of  $\overline{X}$  is
- (3) The assumptions?
- (4) A 90% confident interval for  $\mu$ .

**Q57:** In a random sample of 500 homes in a certain city, it is found that 114 are heated by oil. Let  $\pi$  be the proportion of homes in this city that are heated by oil.

- 1. Find a point estimate for  $\pi$ .
- 2. Construct a 98% confidence interval for  $\pi$ .

**Q58:** In a study involved 1200 car drivers, it was found that 50 car drivers do not use seat belt.

1. A point estimate for the proportion of car drivers who do not use seat belt is:

(A) 50	A) 50 (B) 0.0417 (C) 0.9		(D) 1150	(E) None of these
2. The	lower limit of a 9	5% confidence in	terval of the prope	ortion of car drivers
not	using seat belt is			
(A) 0.0322	(B) 0.0416	(C) 0 .0304	(D) -0.3500	(E) None of these
3. The	upper limit of a 9	5% confidence in	terval of the prope	ortion of car drivers
not	using seat belt is			

(A) 0.0417 (B) 0.0530 (C) 0.0512 (D) 0.4333 (E) None of these

**Q59:** A study was conducted to make some inferences about the proportion of female employees ( $\pi$ ) in a certain hospital. A random sample gave the following data:

Sample size	250
Number of females	120

- 1. Calculate a point estimate (p) for the proportion of female employees ( $\pi$ ).
- 2. Construct a 90% confidence interval for p.

**Q60:** A random sample of 200 students from a certain school showed that 15 students smoke. let  $\pi$  be the proportion of smokers in the school.

- 1. Find a point estimate for  $\pi$
- 2. Find 95% confidence interval for  $\pi$

**Q61:** A researcher was interested in making some statistical inferences about the proportion of females ( $\pi$ ) among the students of a certain university. A random sample of 500 students showed that 150 students are female.

1. A	A good point	estima	te for $\pi$ is						
(A)	0.31	(B)	0.30	(C)	0.29	(D)	0.25	(E)	0.27
2. T	he lower limi	t of a 9	00% confiden	ce inter	rval for $\pi$ is				
(A)	0.2363	(B)	0.2463	(C)	0.2963	(D)	0.2063	(E)	0.2663
3. The upper limit of a 90% confidence interval for $\pi$ is									
(A)	0.3337	(B)	0.3137	(C)	0.3637	(D)	0.2937	(E)	0.3537



### Areas Under The Standard Normal Curve

	nder The S									
			1	1 0.02	0.04	0.05	0.06	0.07	0.08	0.09
Z.	0.00	0.01	0.02	0.03	and the second se	0.0003	0.0003	0.0003	0.0003	0.0002
-3.4	0.0003	0.0003	0.0003	0.0003	0.0003		0.0004	0.0004	0.0004	0.0003
-3.3	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0006	0.0005	0.0005	0.0005
-3.2	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006		0.0008	0.0007	0.0007
the second s	0.0010	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008			0.0010
-3.1		0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	
-3.0	0.0013	and the second sec	0.0018	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014
-2.9	0.0019	0.0018		0.0023	0.0023	0.0022	0.0021	0.0021	0.0020	0.0019
-2.3	0.0026	0.0025	0.0024	and the second se	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026
-2.7	0.0035	0.0034	0.0033	0.0032	and the second division of the second divisio	1 0.0040	0.0039	0.0038	0.0037	0.0036
-2.6	0.0047	0.0045	0.0044	0.0043	1:0.0041		0.0052	0.0051	0.0049	0.0048
-2.5	0.0062	0.0060	0.0059	0.0057	0.0055	0.0054		0.0068	0.0066	0.0064
	0.0082	0.0080	0.0078	0.0075	0.0073	0.0071	0.0069		0.0087	0.0084
-2.4		0.0104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0039		
-2.3	0.0107		0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.0110
-2.2	0.0139	0.0136		0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143
-2.1	0.0179	0.0174	0.0170		0.0207	0.0202	0.0197	0.0192	0.0188	0.0183
-2.0	0.0228	0.0222	0.0217	0.0212	and the second se	0.0256	0.0250	0.0244	0.0239	0.0233
-1.9	0.0287	0.0281	0.0274	0.0268	0.0262		0.0314	0.0307	0.0301	0.0294
-1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	Contraction of the local division of the loc	0.0384	0.0375	0.0367
	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	and the second se	0.0465	0.0455
-1.7		0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475		0.0559
-1.6	0.0548		0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	
-1.5	0.0668	0.0655		0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681
-1.4	0.0808	0.0793	0.0778		0.0901	0.0885	0.0869	0.0853	0.0838	0.0823
-1.3	0.0968	0.0951	0.0934	0.0918		0.1056	0.1038	0.1020	0.1003	0.0985
-1.2	0.1151	0.1131	0.1112	0.1093	0.1075	And in case of the local division of the loc	0.1230	0.1210	0,1190	0.1170
-1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251		0.1423	0.1401	0.1379
-1.0	0.1587	0.1562	0.1539	0.1515	0.1.192	0.1469	0.1446		0.1635	0.1811
	0.1331	0.1814	0.1788	0.1762	0.1736	6.1711	0.1685	0.1660	0.1835	0.1367
-0,9	the state of the s	0.2090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922		the second se
-0.8	0.2119	the second se	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148
-0.7	0.2420	0.2389		0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451
-0.6	0.2743	0.2709	0.2676		0.2946	6.2912	0.2877	0.2843	0.2810	0.2776
-0.5	0.3085	0.3050	0.3015	0.2981		0.3254	0.3228	0.3192	0.3156	0.3121
-0.4	0.3446	0.3409	0.3372	0.3336	0.3300		0.3594	0.3557	0.3520	0.3483
	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	1 million and the second second	0.3936	0.3897	0.3859
the second se	3									
	3 4207	1 6 416B	0.4129	0.4090	0.4052	0.4013	0.3974			1 0 1717
-0.2	0.4207	0.4168	0.4129		0.4052	0.4013	0.4364	0.4325	0.4256	0.4247
-0.1	0.4602	0.4562	0.4522	0.4483	0.4443		and the second s		0.4286 0.4681	0.4541
	0.4602	0.4562	0.4522 0.4920	0.4483 0.4880	0.4443	0.4404 0.4801	0.4364	0.4325	0.4286 0.4681 0.5319	0.4541
-0.1	0.4602	0.4562 0.4960 0.5040	0.4522 0.4920 0.5080	0.4483 0.4880 0.5120	0.4443	0.4404 0.4801 0.5199	0.4364 0.4761 0.5239	0.4325	0.4286 0.4681	0.4541 0.5359 0.5753
-0.1	0.4602	0.4562 0.4960 0.5040 0.5438	0.4522 0.4920 0.5080 0.5478	0.4483 0.4880 0.5120 0.5517	0.4443 0.4840 0.5160 0.5557	0.4404 0.4801 0.5199 0.5596	0.4364 0.4761 0.5239 0.5636	0.4325 0.4721 0.5279 0.5675	0.4286 0.4681 0.5319	0.4541 0.5359
-0.1 -0.0 0.0 0.1	0.4602 0.5000 0.5000	0.4562 0.4960 0.5040	0.4522 0.4920 0.5080	0.4483 0.4880 0.5120 0.5517 0.5910	0.4443 0.4840 0.5160 0.5557 0.5948	0.4404 0.4801 0.5199 0.5596 0.5987	0.4364 0.4761 0.5239 0.5636 0.6026	0.4325 0.4721 0.5279 0.5675 0.6064	0.4286 0.4681 0.5319 0.5714 0.6103	0.4541 0.5359 0.5753
-0.1 -0.0 0.0 0.1 0.2	0.4602 0.5000 0.5000 0.5398 0.5793	0.4562 0.4960 0.5040 0.5438 0.5832	0.4522 0.4920 0.5080 0.5478	0.4483 0.4880 0.5120 0.5517	0.4443 0.4840 0.5160 0.5557 0.5948 0.6331	0.4404 0.4801 0.5199 0.5596 0.5987 0.6368	0.4364 0.4761 0.5239 0.5636 0.6026 0.6406	0.4325 0.4721 0.5279 0.5675 0.6064 0.6443	0.4286 0.4681 0.5319 0.5714 0.6103 0.6480	0.4541 0.5359 0.5753 0.5141 0.6517
-0.1 -0.0 0.0 0.1 0.2 0.3	0.4602 0.5000 0.5000 0.5398 0.5793 0.6179	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217	0.4522 0.4920 0.5080 0.5478 0.5871 0.6255	0.4483 0.4880 0.5120 0.5517 0.5910	0.4443 0.4840 0.5160 0.5557 0.5948	0.4404 0.4801 0.5199 0.5596 0.5987 0.6368 0.6736	0.4364 0.4761 0.5239 0.5636 0.6026 0.6406 0.6772	0.4325 0.4721 0.5279 0.5675 0.6064 0.6443 0.6808	0.4286 0.4681 0.5319 0.5714 0.6103 0.6480 0.5844	0.4541 0.6369 0.5753 0.5141 0.6517 0.6379
-0.1 -0.0 0.0 0.1 0.2 0.3 0.4	0.4502 0.5000 0.5000 0.5398 0.5793 0.6179 0.8554	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.8591	0.4522 0.4920 0.5080 0.5478 0.5871 0.6255 0.6628	0.4483 0.4880 0.5120 0.5517 0.5910 0.6293	0.4443 0.4840 0.5160 0.5557 0.5948 0.6331	0.4404 0.5199 0.5596 0.5987 0.6368 0.6736 0.7088	0.4364 0.4761 0.5239 0.5636 0.6026 0.6406 0.6772 0.7123	0.4325 0.4721 0.5279 0.5675 0.6064 0.6443 0.6808 0.7157	0.4286 0.4681 0.5319 0.5714 0.6103 0.6480 0.5844 0.7150	0.4541 0.6369 0.5753 0.6141 0.6517 0.6379 0.7224
-0.1 -0.0 0.1 0.2 0.3 0.4 0.5	0.4502 0.5000 0.5000 0.5398 0.5793 0.6179 0.6554 0.6915	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.8591 0.6950	0.4522 0.4920 0.5080 0.5478 0.6255 0.6255 0.6628 0.6985	0.4483 0.4880 0.5120 0.5517 0.5910 0.6293 0.6664 0.7019	0.4443 0.4840 0.5160 0.5557 0.5948 0.6331 0.6700 0.7054	0.4404 0.4801 0.5199 0.5596 0.5987 0.6368 0.6736	0.4364 0.4761 0.5239 0.5636 0.6026 0.6406 0.6772	0.4325 0.4721 0.5279 0.6064 0.6443 0.6808 0.7157 0.7486	0.4286 0.4681 0.5319 0.5714 0.6103 0.6480 0.6480 0.5844 0.7190 0.7517	0.4541 0.5369 0.5753 0.5141 0.6517 0.6379 0.7224 0.7549
-0.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6	0.4502           0.5003           0.5000           0.5398           0.5793           0.6179           0.5554           0.6915           0.7257	0.4562 0.4960 0.5040 0.5438 0.6832 0.6217 0.8591 0.6950 0.7291	0.4522 0.4320 0.5080 0.5478 0.5871 0.6255 0.6628 0.6585 0.7324	0.4483 0.4880 0.5120 0.5517 0.5910 0.6293 0.6664 0.7019 0.7357	0.4443 0.4840 0.5160 0.5557 0.5948 0.6331 0.6700 0.7054 0.7389	0.4484 6.4801 0.5199 0.5556 0.5987 0.6368 0.6736 0.7088 0.7088	0.4364 0.4761 0.5239 0.5636 0.6026 0.6406 0.6772 0.7123	0.4325 0.4721 0.5279 0.5675 0.6064 0.6443 0.6808 0.7157	0.4286 0.4681 0.5319 0.5714 0.6103 0.6480 0.6844 0.7190 0.7517 0.7823	0.4541 0.5369 0.5753 0.5141 0.6517 0.6379 0.7224 0.7549 0.7352
-0.1 -0.0 0.1 0.2 0.3 0.4 0.5	0.4502 0.5000 0.5000 0.5398 0.5793 0.6179 0.8554 0.6915 0.7257 0.7580	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6591 0.6950 0.7291	0.4522 0.4920 0.5060 0.5478 0.6871 0.6255 0.6628 0.6985 0.7324 0.7642	0.4483 0.4880 0.5120 0.5517 0.5910 0.6293 0.6664 0.7019 0.7357 0.7673	0.4443 0.4840 0.5160 0.5557 0.5948 0.6331 0.6700 0.7054 0.7389 0.7704	0.4404 0.4801 0.5199 0.5596 0.5937 0.6368 0.6736 0.7088 0.7422 0.7734	0.4364 0.4751 0.5239 0.6026 0.6406 0.6772 0.7123 0.7454 0.7764	0.4325 0.4721 0.5279 0.6064 0.6443 0.6808 0.7157 0.7486	0.4286 0.4681 0.5319 0.5714 0.6103 0.6480 0.6844 0.7190 0.7517 0.7823 0.8106	0.4541 0.5369 0.5753 0.5141 0.6517 0.6379 0.7224 0.7549 0.7352 0.8133
-0.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6	0.4502           0.5003           0.5000           0.5398           0.5793           0.6179           0.5554           0.6915           0.7257	0.4562 0.4960 0.5040 0.5438 0.6832 0.6217 0.8591 0.6950 0.7291	0.4522 0.4920 0.5080 0.5478 0.6871 0.6255 0.6628 0.6985 0.7324 0.7642 0.7939	0.4483 0.4880 0.5120 0.5517 0.5910 0.6293 0.6664 0.7019 0.7357 0.7673 0.7967	0.4443           0.4840           0.5160           0.5557           0.5948           0.6331           0.6700           0.7054           0.7389           0.7704           0.7995	0.4404           0.4801           0.5199           0.5596           0.5987           0.6368           0.6736           0.7088           0.7422           0.7734           0.8023	0.4364 0.4751 0.5239 0.6026 0.6406 0.6772 0.7123 0.7454 0.7764 0.8051	0.4325 0.4721 0.5279 0.5675 0.6064 0.6443 0.6808 0.7157 0.7486 0.7794 0.8078	0.4286 0.4681 0.5319 0.5714 0.6103 0.6480 0.6844 0.7190 0.7517 0.7823 0.8106	0.4541 0.5369 0.5753 0.5141 0.6517 0.6379 0.7224 0.7549 0.7352 0.8133
-0.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8	0.4502           0.5000           0.5398           0.5793           0.6179           0.8554           0.6915           0.7257           0.7580           0.7961	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6591 0.6950 0.7291	0.4522 0.4920 0.5060 0.5478 0.6871 0.6255 0.6628 0.6985 0.7324 0.7642	0.4483 0.4880 0.5120 0.5517 0.5910 0.6293 0.6664 0.7019 0.7357 0.7673 0.7967 0.8238	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264	0.4404           0.4801           0.5199           0.5596           0.5987           0.6368           0.6736           0.7088           0.7422           0.7734           0.8023           0.8289	0.4364 0.4751 0.5239 0.5636 0.6026 0.6406 0.6772 0.7123 0.7454 0.7764 0.8051 0.8315	0.4325 0.4721 0.5279 0.5675 0.6064 0.6443 0.6808 0.7157 0.7486 0.7794 0.8078 0.8340	0.4286           0.4681           0.5319           0.5714           0.6103           0.6480           0.6844           0.7190           0.7517           0.7823           0.8106           0.8365	0.4541 0.5369 0.5753 0.5141 0.6517 0.6379 0.7224 0.7549 0.7352
-0.1 -0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9	0.4502 0.5000 0.5000 0.5398 0.5793 0.6179 0.6554 0.6915 0.7257 0.7580 0.7861 0.3159	0.4562 0.4960 0.5040 0.5438 0.6832 0.6217 0.6551 0.6950 0.7291 0.7611 0.7910 0.8186	0.4522 0.4920 0.5080 0.5478 0.6871 0.6255 0.6628 0.6985 0.7324 0.7642 0.7939	0.4483 0.4880 0.5120 0.5517 0.5910 0.6293 0.6664 0.7019 0.7357 0.7673 0.7673 0.7967 0.8238 0.8485	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8508	0.4404           0.4801           0.5199           0.5596           0.5987           0.6368           0.6736           0.7088           0.7422           0.7734           0.8023           0.8289           0.8531	0.4364 0.4751 0.5239 0.6026 0.6406 0.6406 0.6772 0.7123 0.7454 0.7764 0.8051 0.8315 0.8554	0.4325 0.4721 0.5279 0.5675 0.6064 0.6443 0.6808 0.7157 0.7486 0.7794 0.8078 0.8340 0.8577	0.4286           0.4681           0.5319           0.5714           0.6103           0.6480           0.6844           0.7190           0.7517           0.7823           0.8106           0.8365           0.8599	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           0.8389           0.3521
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0	0.4502           0.5000           0.5000           0.5398           0.6179           0.6554           0.6915           0.7257           0.7580           0.7261           0.3159           0.8159           0.8159	0.4562 0.4960 0.5040 0.5438 0.6832 0.6217 0.6591 0.6950 0.7291 0.7611 0.7910 0.8186 0.8438	0.4522 0.4920 0.5080 0.5478 0.6871 0.6255 0.6628 0.6985 0.7324 0.7642 0.7939 0.8212	0.4483 0.4880 0.5120 0.5517 0.5910 0.6293 0.6664 0.7019 0.7357 0.7673 0.7967 0.8238	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8508           0.8729	0.4404 0.4801 0.5199 0.5596 0.5987 0.6368 0.6736 0.7028 0.7422 0.7734 0.8023 0.8289 0.8531 0.8749	0.4364 0.4751 0.5239 0.6026 0.6026 0.6406 0.6772 0.7123 0.7454 0.7764 0.8051 0.8315 0.8554 0.8770	0.4325 0.4721 0.5279 0.5675 0.6064 0.6443 0.6808 0.7157 0.7486 0.7794 0.8078 0.8340 0.8577 0.8790	0.4286 0.4681 0.5319 0.5714 0.6103 0.6480 0.6844 0.7190 0.7517 0.7823 0.8106 0.8365 0.8599 0.8810	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           0.83289           0.3621           0.3830
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1	0.4502           0.5000           0.5000           0.5398           0.6179           0.6554           0.6915           0.7257           0.7580           0.7261           0.3159           0.8413           0.8643	0.4562 0.4960 0.5040 0.5438 0.6832 0.6217 0.6551 0.6250 0.7291 0.7611 0.7910 0.8186 0.8438 0.8665	0.4522 0.4920 0.5080 0.5478 0.6871 0.6255 0.6628 0.6985 0.7324 0.7642 0.7939 0.8212 0.8461 0.8686	0.4483 0.4880 0.5120 0.5517 0.5910 0.6293 0.6664 0.7019 0.7357 0.7673 0.7673 0.7967 0.8238 0.8485	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8508	0.4404           0.4801           0.5199           0.5596           0.5387           0.6368           0.6736           0.7028           0.7734           0.8023           0.8531           0.8749           0.8944	0.4364 0.4751 0.5239 0.5636 0.6026 0.6406 0.6772 0.7123 0.7454 0.7764 0.8051 0.8315 0.8554 0.8770 0.8962	0.4325 0.4721 0.5279 0.5675 0.6064 0.6443 0.6808 0.7157 0.7486 0.7794 0.8078 0.8340 0.8577 0.8730 0.8980	0.4286           0.4681           0.5319           0.5714           0.6103           0.6480           0.6844           0.7190           0.7517           0.7823           0.8106           0.8365           0.8599           0.8810           0.8997	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           6.8389           0.3621           0.9330           0.9015
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2	0.4502           0.5000           0.5000           0.5398           0.6179           0.6554           0.6915           0.7257           0.7580           0.7261           0.8159           0.8159           0.8413           0.8643	0.4562 0.4960 0.5040 0.5438 0.6832 0.6217 0.62591 0.6950 0.7291 0.7611 0.7910 0.8186 0.8438 0.8665 0.8869	0.4522 0.4920 0.5080 0.5478 0.6255 0.6628 0.6985 0.7324 0.7642 0.7939 0.3212 0.8461 0.8686 0.8888	0.4483 0.4880 0.5120 0.5517 0.5910 0.6293 0.6664 0.7019 0.7357 0.7673 0.7673 0.7967 0.8238 0.8485 0.8708 0.8907	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8508           0.8729	0.4404 0.4801 0.5199 0.5596 0.5937 0.6368 0.6736 0.7028 0.7422 0.7734 0.8023 0.8289 0.8531 0.8749	2.4364 0.4761 0.5239 0.5636 0.6026 0.6406 0.6772 0.7123 0.7454 0.7764 0.8051 0.8551 0.8554 0.8554 0.8770 0.8962 0.9131	0.4325 0.4721 0.5279 0.5675 0.6064 0.6443 0.6808 0.7157 0.7486 0.7794 0.8078 0.8340 0.8577 0.8790 0.8980 0.9147	0.4286           0.4681           0.5319           0.5714           0.6103           0.6480           0.6844           0.7190           0.7517           0.7823           0.8106           0.8365           0.8599           0.8840           0.8997           0.9162	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           6.8389           0.3621           0.9015           0.9177
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3	0.4502           0.5000           0.5000           0.5398           0.6179           0.6554           0.6915           0.7257           0.7580           0.3159           0.8159           0.8413           0.8643           0.9032	0.4562 0.4960 0.5040 0.5438 0.6832 0.6217 0.62591 0.7291 0.7291 0.7611 0.7910 0.8438 0.8665 0.8438 0.8665 0.8869 0.9049	0.4522 0.4920 0.5080 0.5478 0.6285 0.6285 0.6285 0.6385 0.7324 0.7642 0.7939 0.8212 0.8461 0.8686 0.8888 0.9066	0.4483           0.4880           0.5120           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.7673           0.8238           0.8485           0.8708           0.8907           0.9082	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7054           0.7095           0.8204           0.8208           0.8208           0.8208           0.8225           0.9099	0.4404           0.4801           0.5199           0.5596           0.5387           0.6368           0.6736           0.7028           0.7734           0.8023           0.8531           0.8749           0.8944	0.4364 0.4751 0.5239 0.5636 0.6026 0.6406 0.6772 0.7123 0.7454 0.7764 0.8051 0.8315 0.8554 0.8770 0.8962	0.4325 0.4721 0.5279 0.5675 0.6064 0.6443 0.6808 0.7157 0.7486 0.7794 0.8078 0.8340 0.8577 0.8780 0.8380 0.9147 0.9292	0.4286 0.4681 0.5319 0.5714 0.6103 0.6480 0.6844 0.7190 0.7517 0.7823 0.8106 0.8365 0.8359 0.8810 0.88997 0.9162 0.9308	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           0.8221           0.8320           0.9015           0.9177           0.9319
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.6554           0.6915           0.7257           0.7680           0.5793           0.8159           0.8413           0.8643           0.8349           0.9032           0.9192	0.4562 0.4960 0.5040 0.5438 0.6832 0.6217 0.6253 0.7291 0.7611 0.7910 0.8136 0.8438 0.8665 0.8869 0.9049 0.9207	0.4522 0.4920 0.5080 0.5478 0.6285 0.6285 0.6385 0.7324 0.7642 0.7939 0.8212 0.8461 0.8686 0.8888 0.9066 0.9222	0.4483           0.4880           0.5120           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.7673           0.8238           0.8485           0.8708           0.8907           0.9082           0.9236	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7054           0.7095           0.8264           0.8225           0.9099           0.9251	0.4404           0.4801           0.5199           0.5556           0.5387           0.6368           0.6736           0.7028           0.7734           0.8239           0.8531           0.8749           0.8944           0.9115           0.9265	2.4364 0.4761 0.5239 0.5636 0.6026 0.6406 0.6772 0.7123 0.7454 0.7764 0.8051 0.8551 0.8554 0.8554 0.8770 0.8962 0.9131	0.4325 0.4721 0.5279 0.5675 0.6064 0.6443 0.6808 0.7157 0.7486 0.7794 0.8078 0.8340 0.8577 0.8790 0.8980 0.9147	0.4286           0.4681           0.5319           0.5714           0.6103           0.6480           0.5844           0.7190           0.7517           0.8105           0.8106           0.8365           0.8599           0.8810           0.8997           0.9162           0.9308           0.9429	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           0.8221           0.3521           0.9015           0.9177           0.9319           0.9441
-0.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3	0.4502           0.5000           0.5000           0.5398           0.6179           0.6554           0.6915           0.7257           0.7580           0.3159           0.8159           0.8413           0.8643           0.9032	0.4562 0.4960 0.5040 0.5438 0.6217 0.6253 0.6217 0.6253 0.7291 0.7291 0.7611 0.7910 0.8156 0.8438 0.8665 0.8869 0.9049 0.9207 0.9345	0.4522 0.4920 0.5080 0.5478 0.6285 0.6628 0.6985 0.7324 0.7642 0.7939 0.8212 0.8461 0.8686 0.8888 0.9066 0.9222 0.9357	0.4483           0.4880           0.5120           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.7967           0.8238           0.8485           0.8708           0.8907           0.9082           0.9236           0.9370	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7389           0.7704           0.8264           0.8225           0.9099           0.9251           0.9382	0.4404           0.4801           0.5199           0.5596           0.5387           0.6368           0.736           0.7088           0.7734           0.8023           0.8531           0.8749           0.8944           0.9115           0.9265           0.9394	0.4364           0.4761           0.5239           0.5636           0.6026           0.6406           0.6772           0.7123           0.7454           0.8051           0.8315           0.8554           0.8770           0.3962           0.9131           0.9279           0.9406	0.4325 0.4721 0.5279 0.5675 0.6064 0.5443 0.6808 0.7157 0.7486 0.7794 0.8078 0.8340 0.8577 0.8780 0.8380 0.9147 0.8292 0.3418	0.4286 0.4681 0.5319 0.5714 0.6103 0.6480 0.6844 0.7190 0.7517 0.7823 0.8106 0.8365 0.8359 0.8810 0.88997 0.9162 0.9308	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           0.8221           0.3521           0.9015           0.9177           0.9319
-0.1 -0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.6554           0.6915           0.7257           0.7680           0.5793           0.8159           0.8413           0.8643           0.8349           0.9032           0.9192	0.4562 0.4960 0.5040 0.5438 0.6832 0.6217 0.6253 0.7291 0.7611 0.7910 0.8136 0.8438 0.8665 0.8869 0.9049 0.9207	0.4522 0.4920 0.5080 0.5478 0.6255 0.6628 0.6985 0.7324 0.7642 0.7939 0.8212 0.8461 0.8886 0.8888 0.9066 0.9222 0.9357 0.9474	0.4483           0.4880           0.5120           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.7967           0.8238           0.8485           0.8708           0.8907           0.9082           0.9236           0.9370           0.9434	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7389           0.7704           0.8264           0.8225           0.9925           0.9251           0.9382           0.9495	0.4404           0.4801           0.5199           0.5596           0.5387           0.6368           0.736           0.7088           0.7734           0.8023           0.8531           0.8749           0.8944           0.9115           0.9265           0.9394           0.9505	0.4364           0.4761           0.5239           0.5636           0.6026           0.6406           0.6772           0.7123           0.7454           0.8051           0.8554           0.8315           0.84051           0.8554           0.9962           0.9131           0.9279           0.9406           0.9515	0.4325           0.4721           0.5279           0.5675           0.6064           0.5443           0.6808           0.7157           0.7486           0.7794           0.8078           0.8340           0.8577           0.93980           0.9147           0.6292           0.3418           0.9525	0.4286           0.4681           0.5319           0.5714           0.6103           0.6480           0.6844           0.7190           0.7517           0.7823           0.8106           0.8365           0.8599           0.84810           0.9462           0.9306           0.9429           0.9535	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7549           0.7549           0.7549           0.7362           0.8133           0.3820           0.9015           0.9177           0.9319           0.95441           0.9545
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.8554           0.6915           0.7257           0.7580           0.8413           0.8643           0.849           0.9032           0.9192           0.9452	0.4562 0.4960 0.5040 0.5438 0.6217 0.6253 0.6217 0.6353 0.7291 0.7291 0.7611 0.7910 0.8196 0.8438 0.8665 0.8869 0.9049 0.9207 0.9345 0.9463	0.4522 0.4920 0.5080 0.5478 0.6285 0.6628 0.6985 0.7324 0.7642 0.7939 0.8212 0.8461 0.8686 0.8888 0.9066 0.9222 0.9357	0.4483           0.4880           0.5120           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.7967           0.8238           0.8485           0.8708           0.8907           0.9082           0.9236           0.9370	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7389           0.7704           0.8264           0.8225           0.9099           0.9251           0.9382           0.9495	0.4404           0.4801           0.5199           0.5596           0.5387           0.6368           0.736           0.7088           0.7734           0.8023           0.8531           0.8531           0.8749           0.8944           0.9115           0.9265           0.9394           0.9505           8.9599	0.4364           0.4761           0.5239           0.5636           0.6026           0.5406           0.6772           0.7123           0.7454           0.7764           0.8051           0.8554           0.8770           0.8962           0.9131           0.9279           0.9406           0.9515           0.9608	0.4325           0.4721           0.5279           0.5675           0.6064           0.6443           0.6808           0.7157           0.7436           0.7794           0.8078           0.8340           0.8577           0.8980           0.9147           0.5292           0.9418           0.9525           0.9616	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.5844           0.7190           0.7517           0.7823           0.8106           0.8559           0.8810           0.8997           0.9162           0.9306           0.9425           0.9625	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7549           0.7362           0.8133           0.8230           0.9015           0.9017           0.9319           0.5441           0.9545           0.9633
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.6554           0.6915           0.7257           0.7580           0.8159           0.8413           0.8849           0.9032           0.9192           0.9332           0.9452	0.4562 0.4960 0.5040 0.5438 0.6217 0.6253 0.6217 0.6353 0.7291 0.7291 0.7611 0.7910 0.8196 0.8438 0.8665 0.8869 0.9049 0.9207 0.9345 0.9463 0.9564	0.4522 0.4920 0.5080 0.5478 0.6255 0.6628 0.6985 0.7324 0.7642 0.7939 0.8212 0.8461 0.8886 0.8888 0.9066 0.9222 0.9357 0.9474	0.4483           0.4880           0.5120           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.7967           0.8238           0.8485           0.8708           0.8907           0.9082           0.9236           0.9370           0.9434	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7389           0.7704           0.8264           0.8225           0.9925           0.9251           0.9382           0.9495	0.4404           0.4801           0.5199           0.5596           0.5987           0.6368           0.736           0.7088           0.7422           0.7734           0.8023           0.8531           0.8749           0.9444           0.9115           0.9265           0.9394           0.9505           0.9599           0.9678	0.4364           0.4761           0.5239           0.5636           0.6026           0.5406           0.7123           0.7123           0.7454           0.7764           0.8051           0.8554           0.8962           0.9131           0.9279           0.9406           0.9515           0.9608           0.9686	0.4325           0.4721           0.5279           0.5675           0.6064           0.6443           0.6808           0.7157           0.7436           0.7794           0.8078           0.8340           0.8577           0.8880           0.9147           0.5292           0.9418           0.9525           0.9616	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.6844           0.7190           0.7517           0.7823           0.8106           0.8559           0.8810           0.8997           0.9162           0.9306           0.9425           0.9625           0.9699	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7552           0.8133           0.8521           0.8521           0.9015           0.9177           0.9319           0.95441           0.9545           0.9633           0.9706
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.6554           0.6915           0.7257           0.7580           0.8159           0.8413           0.8849           0.9032           0.9192           0.9332           0.9452           0.9554	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6253 0.7291 0.7291 0.7611 0.7910 0.8186 0.8655 0.8655 0.8655 0.8655 0.8655 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564	0.4522 0.4920 0.5080 0.5478 0.6255 0.6628 0.6628 0.7324 0.7642 0.7939 0.3212 0.8461 0.8866 0.9828 0.9066 0.9222 0.9357 0.9474 0.9573 0.9656	0.4483           0.4880           0.5120           0.5517           0.5517           0.5517           0.6664           0.7019           0.7357           0.7673           0.7967           0.8238           0.8485           0.8907           0.9082           0.9236           0.9370           0.9434           0.9582           0.9664	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7389           0.7704           0.8264           0.8225           0.9099           0.9251           0.9382           0.9495	0.4404           0.4801           0.5199           0.5596           0.5387           0.6368           0.736           0.7088           0.7734           0.8023           0.8531           0.8531           0.8749           0.8944           0.9115           0.9265           0.9394           0.9505           8.9599	£.4364           0.4761           0.5239           0.5636           0.6026           0.5406           0.7123           0.7454           0.7764           0.8051           0.8315           0.8354           0.9962           0.9279           0.9406           0.9515           0.9608           0.9386	0.4325           0.4721           0.5279           0.5675           0.6064           0.6443           0.6808           0.7157           0.7486           0.7794           0.8078           0.83340           0.8577           0.8880           0.9147           0.5292           0.3412           0.9525           0.9616           0.9756	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.8844           0.7517           0.7823           0.8106           0.8365           0.8559           0.8810           0.8452           0.9462           0.9306           0.9429           0.9535           0.9625           0.9639           0.9761	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7552           0.8133           0.8521           0.8521           0.9015           0.9177           0.92441           0.9545           0.9706
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.6554           0.6915           0.7257           0.7580           0.7951           0.8413           0.8643           0.9032           0.9192           0.9332           0.9452           0.9554           0.9757	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6253 0.7291 0.7291 0.7611 0.7910 0.8186 0.8665 0.8665 0.8665 0.8665 0.869 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564 0.9564 0.9719	0.4522           0.4920           0.5080           0.5478           0.6255           0.6628           0.6285           0.7324           0.7642           0.7939           0.3212           0.8686           0.9066           0.9222           0.9357           0.9474           0.9573           0.9656           0.9726	0.4483           0.4880           0.5120           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.8238           0.8485           0.8907           0.9082           0.9236           0.9434           0.9582           0.9664           0.9732	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8208           0.8225           0.93825           0.9382           0.9495           0.9591           0.9591           0.9738	0.4404           0.4801           0.5199           0.5596           0.5987           0.6368           0.736           0.7088           0.7422           0.7734           0.8023           0.8531           0.8749           0.8944           0.9265           0.9394           0.9505           0.9599           0.9678           6.9744	0.4364           0.4761           0.5239           0.5636           0.6026           0.5406           0.7123           0.7123           0.7454           0.7764           0.8051           0.8554           0.8962           0.9131           0.9279           0.9406           0.9515           0.9608           0.9686	0.4325           0.4721           0.5279           0.5675           0.6064           0.6443           0.6808           0.7157           0.7486           0.7794           0.8078           0.3340           0.8577           0.8980           0.9712           0.9525           0.9616           0.9755           0.9808	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.7517           0.7823           0.8106           0.8365           0.8559           0.8420           0.9462           0.9306           0.9429           0.9535           0.9625           0.9699           0.9761           0.9812	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           0.821           0.8339           0.3521           0.9177           0.9177           0.9545           0.9633           0.9706           0.9767           0.9817
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.9554           0.6915           0.7257           0.7580           0.793           0.8413           0.8643           0.9322           0.9452           0.9554           0.9713           0.9772	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6250 0.7291 0.7611 0.7910 0.8136 0.8655 0.8869 0.9207 0.9345 0.9463 0.9564 0.9564 0.95719 0.9778	0.4522           0.4920           0.5080           0.5478           0.6255           0.6628           0.7324           0.7642           0.7939           0.3212           0.8685           0.9361           0.8686           0.9066           0.9222           0.9357           0.9474           0.9556           0.9726           0.9783	0.4483           0.4880           0.5120           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.8238           0.8485           0.8708           0.9082           0.9236           0.9370           0.9434           0.9582           0.9664           0.9732           0.9783	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8208           0.8225           0.9382           0.9495           0.9591           0.9591           0.9738           0.9793	0.4404           0.4801           0.5199           0.5596           0.5987           0.6368           0.736           0.7088           0.7422           0.7734           0.8023           0.8531           0.8749           0.8944           0.9265           0.9394           0.9505           0.9599           0.9678           0.9744           0.9798	£.4364           0.4761           0.5239           0.5636           0.6026           0.5406           0.7123           0.7454           0.7764           0.8051           0.8315           0.8354           0.9962           0.9279           0.9406           0.9515           0.9608           0.9386	0.4325           0.4721           0.5279           0.5675           0.6064           0.6443           0.6808           0.7157           0.7486           0.7794           0.8078           0.83340           0.8577           0.8880           0.9147           0.5292           0.3412           0.9525           0.9616           0.9756	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.5844           0.7517           0.7823           0.8106           0.8365           0.8365           0.8599           0.8420           0.9422           0.9535           0.9625           0.96399           0.9761           0.9812	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           6.3389           0.3521           0.8133           6.3389           0.3521           0.9015           0.9177           0.9319           0.5441           0.9545           0.9633           0.9706           0.9767           0.9857
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.9554           0.6915           0.7257           0.7580           0.7257           0.7580           0.7257           0.7580           0.7257           0.7580           0.7861           0.8413           0.8643           0.9032           0.9192           0.9332           0.9452           0.9554           0.9641           0.97713           0.9772           0.9821	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6250 0.7291 0.7611 0.7910 0.8136 0.8655 0.8869 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564 0.9564 0.9719 0.9778 0.9826	0.4522           0.4920           0.5080           0.5478           0.6255           0.6628           0.7324           0.7642           0.7939           0.3212           0.8461           0.8888           0.9066           0.9222           0.9474           0.9573           0.9656           0.9726           0.9783           0.9830	0.4483           0.4880           0.5120           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.7867           0.8238           0.8485           0.8907           0.9082           0.9434           0.9582           0.9664           0.9732           0.9783           0.9834	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8264           0.8250           0.8251           0.9099           0.9251           0.9382           0.9495           0.9591           0.9738           0.9793	0.4404           0.4801           0.5199           0.5596           0.5987           0.6368           0.736           0.7088           0.7734           0.8023           0.8289           0.8531           0.8749           0.8265           0.9394           0.9505           0.9599           0.9678           0.9744           0.9798           0.9342	2.4364 0.4761 0.5239 0.5636 0.6026 0.6406 0.6772 0.7123 0.7454 0.8051 0.8051 0.8315 0.8554 0.8554 0.8554 0.9562 0.9406 0.9279 0.9406 0.9515 0.9608 0.9608 0.9608 0.9608 0.9608 0.9750 0.9303 0.9846	0.4325           0.4721           0.5279           0.5675           0.6064           0.6443           0.6808           0.7157           0.7486           0.7794           0.8078           0.3340           0.8577           0.8980           0.9712           0.9525           0.9616           0.9755           0.9808	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.7517           0.7823           0.8106           0.8365           0.8559           0.8420           0.9462           0.9306           0.9429           0.9535           0.9625           0.9699           0.9761           0.9812	0.4541           0.5369           0.5753           0.5141           0.6517           0.6375           0.7224           0.7549           0.7352           0.8133           0.8133           0.8221           0.9015           0.9177           0.9319           0.9441           0.9545           0.9706           0.9767           0.9857           0.9890
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.9554           0.6915           0.7257           0.7580           0.793           0.8413           0.8643           0.9322           0.9452           0.9554           0.9713           0.9772	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6553 0.7291 0.7291 0.7611 0.7910 0.8136 0.8438 0.8665 0.8869 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564 0.9649 0.9778 0.9826 0.9864	0.4522           0.4920           0.5080           0.5478           0.6255           0.6628           0.7324           0.7642           0.7939           0.8212           0.8461           0.8686           0.9065           0.9222           0.9357           0.9474           0.9656           0.9726           0.9783           0.9868	0.4483           0.4880           0.5120           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.7867           0.8238           0.8485           0.8907           0.9082           0.9434           0.9582           0.9664           0.9732           0.9783           0.9834           0.9834	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.704           0.7995           0.8264           0.8264           0.8250           0.9099           0.9251           0.9382           0.9495           0.9591           0.9738           0.9793           0.9838           0.9793	0.4404           0.4801           0.5199           0.5596           0.5987           0.6368           0.736           0.7088           0.7734           0.8023           0.8289           0.8531           0.8749           0.8265           0.9394           0.9505           0.9599           0.9678           0.9798           0.9342           0.9878	2.4364 0.4761 0.5239 0.5636 0.6026 0.6406 0.6772 0.7123 0.7454 0.7764 0.8051 0.8315 0.8554 0.8554 0.8770 0.8962 0.9131 0.9279 0.9406 0.9615 0.9608 0.9608 0.9608 0.9686 0.9750 0.9303 0.9846 0.9881	0.4325 0.4721 0.5279 0.6675 0.6064 0.6443 0.6808 0.7157 0.7486 0.7794 0.8078 0.8340 0.8577 0.8380 0.9147 0.93980 0.9147 0.9292 0.9418 0.9525 0.9693 0.9756 0.9308 0.9250 0.9308	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.5844           0.7517           0.7823           0.8106           0.8365           0.8365           0.8599           0.8420           0.9422           0.9535           0.9625           0.96399           0.9761           0.9812	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           6.3389           0.3521           0.8133           6.3389           0.3521           0.9015           0.9177           0.9319           0.5441           0.9545           0.9633           0.9706           0.9767           0.9857
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.9554           0.6915           0.7257           0.7580           0.7257           0.7580           0.7257           0.7580           0.7257           0.7580           0.7861           0.8413           0.8643           0.9032           0.9192           0.9332           0.9452           0.9554           0.9641           0.97713           0.9772           0.9821	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6250 0.7291 0.7611 0.7910 0.8136 0.8655 0.8869 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564 0.9564 0.9719 0.9778 0.9826	0.4522           0.4920           0.5080           0.5478           0.6255           0.6628           0.7324           0.7642           0.7939           0.8212           0.8461           0.8686           0.9065           0.9222           0.9474           0.9556           0.9726           0.9783           0.9868           0.9888           0.9726           0.9783           0.9868           0.9888	0.4483           0.4880           0.5120           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.7967           0.8238           0.8485           0.8708           0.8907           0.9082           0.9370           0.9484           0.9732           0.9783           0.9834           0.9834           0.98371	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.704           0.7995           0.8264           0.8264           0.8251           0.9099           0.9251           0.9382           0.9495           0.9591           0.9738           0.9793           0.9838           0.9793           0.9838           0.9793	0.4404           0.4801           0.5199           0.5596           0.5987           0.6368           0.736           0.7088           0.7734           0.8023           0.8289           0.8531           0.8749           0.8255           0.9394           0.9265           0.9394           0.9505           0.9788           0.9744           0.9798           0.9342           0.9878           0.906	2.4364 0.4761 0.5239 0.5636 0.6026 0.6406 0.6772 0.7123 0.7454 0.7764 0.8051 0.8315 0.8554 0.8770 0.8962 0.9131 0.9279 0.9406 0.9515 0.9608 0.9608 0.9750 0.9303 0.9846 0.9981 0.9909	0.4325 0.4721 0.5279 0.5675 0.6064 0.6443 0.6808 0.7157 0.7486 0.7794 0.8078 0.8340 0.8577 0.83980 0.9147 0.5292 0.3418 0.9525 0.9516 0.9693 0.9756 0.9884 0.9850	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.5844           0.7517           0.7823           0.8106           0.8365           0.8365           0.8365           0.8365           0.8997           0.9162           0.9306           0.9535           0.9699           0.9761           0.9887           0.9887	0.4541           0.5369           0.5753           0.5141           0.6517           0.6375           0.7224           0.7549           0.7352           0.8133           0.8133           0.8211           0.3821           0.9015           0.9177           0.9319           0.9441           0.9545           0.9706           0.9707           0.9817           0.9857           0.9890
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.6 1.6 1.7 1.9 2.0 2.1 2.2 2.3	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.9554           0.6915           0.7257           0.7580           0.7257           0.7580           0.7257           0.7580           0.8159           0.8413           0.8643           0.9032           0.9192           0.9332           0.9452           0.9554           0.9641           0.9772           0.9821           0.9861           0.9893	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6553 0.7291 0.7291 0.7611 0.7910 0.8136 0.8438 0.8665 0.8869 0.9049 0.9207 0.9345 0.9463 0.9564 0.9586	0.4522           0.4920           0.5080           0.5478           0.6255           0.6628           0.7324           0.7642           0.7939           0.8212           0.8461           0.8686           0.9065           0.9222           0.9357           0.9474           0.9656           0.9726           0.9783           0.9868	0.4483           0.4880           0.5120           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.7867           0.8238           0.8485           0.8907           0.9082           0.9434           0.9582           0.9664           0.9732           0.9783           0.9834           0.9834	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.704           0.7995           0.8264           0.8264           0.8251           0.9099           0.9251           0.95951           0.9591           0.9793           0.9793           0.9838           0.9793           0.9804           0.9904	0.4404           0.4801           0.5199           0.5596           0.5987           0.6368           0.736           0.7088           0.7734           0.8023           0.8289           0.8531           0.8749           0.8255           0.9394           0.9265           0.9394           0.9505           0.9798           0.9798           0.9342           0.9342           0.9378           0.9394	2.4364 0.4761 0.5239 0.5636 0.6026 0.6406 0.6772 0.7123 0.7454 0.7764 0.8051 0.8051 0.8315 0.8554 0.8770 0.8962 0.9131 0.9279 0.9406 0.9515 0.9608 0.9608 0.9750 0.9303 0.9886 0.9750 0.9303 0.9881 0.9999 0.9931	0.4325 0.4721 0.5279 0.6675 0.6064 0.6443 0.6808 0.7157 0.7486 0.7794 0.8078 0.8340 0.8577 0.8390 0.8340 0.8577 0.8980 0.9417 0.9292 0.9418 0.9525 0.9615 0.9693 0.9756 0.9808 0.9850 0.9850 0.9851 0.98911 0.9932	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.5844           0.7517           0.7823           0.8106           0.8365           0.8365           0.8365           0.8365           0.8997           0.9162           0.9306           0.9535           0.9625           0.9625           0.9812           0.9854           0.9834	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           0.8133           0.8221           0.3821           0.3821           0.9015           0.9177           0.9319           0.9441           0.9545           0.9545           0.9545           0.9706           0.9777           0.9857           0.9857           0.9816           0.9536
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.9554           0.6915           0.7257           0.7580           0.7951           0.8413           0.8443           0.9032           0.9452           0.9554           0.9554           0.9322           0.9452           0.9554           0.9713           0.9772           0.9861           0.9893           0.9918	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6553 0.7291 0.7611 0.7910 0.8136 0.8438 0.8665 0.8869 0.9049 0.9207 0.9345 0.9453 0.9564 0.9564 0.9719 0.9778 0.9826 0.9886 0.9886	0.4522           0.4920           0.5080           0.5478           0.6255           0.6628           0.7324           0.7642           0.7939           0.8212           0.8461           0.8686           0.9065           0.9222           0.9474           0.9556           0.9726           0.9783           0.9868           0.9888           0.9726           0.9783           0.9868           0.9888	0.4483           0.4880           0.5120           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.7967           0.8238           0.8485           0.8708           0.8907           0.9082           0.9370           0.9484           0.9732           0.9783           0.9834           0.9834           0.98371	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.704           0.7995           0.8264           0.8264           0.8251           0.9099           0.9251           0.9382           0.9495           0.9591           0.9738           0.9793           0.9838           0.9793           0.9838           0.9793	0.4404           0.4801           0.5199           0.5596           0.5987           0.6368           0.736           0.7088           0.7734           0.8023           0.8289           0.8531           0.8749           0.8944           0.9115           0.9394           0.9555           0.9394           0.9555           0.9788           0.9778           0.9788           0.9788           0.9788           0.9788           0.9788           0.9798           0.9342           0.9342           0.9342           0.929           0.92946	2.4364 0.4761 0.5239 0.5636 0.6026 0.6406 0.6772 0.7123 0.7454 0.7764 0.8051 0.8051 0.8315 0.8554 0.8770 0.8962 0.9131 0.9279 0.9406 0.9515 0.9608 0.95615 0.9608 0.9608 0.9750 0.9303 0.9846 0.9981 0.9909 0.9931 0.9948	0.4325           0.4721           0.5279           0.6675           0.6064           0.6443           0.6808           0.7157           0.7486           0.7794           0.8078           0.8340           0.8577           0.3790           0.8980           0.9147           0.9292           0.9418           0.9525           0.9615           0.9808           0.9756           0.9824           0.9932           0.9449	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.5714           0.7517           0.7823           0.8106           0.8365           0.8365           0.8365           0.8365           0.8365           0.8997           0.9162           0.9306           0.9535           0.9625           0.9625           0.9854           0.9887           0.9913           0.9334	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           0.8133           0.8221           0.3821           0.9015           0.9177           0.9319           0.9441           0.9545           0.9633           0.9706           0.9707           0.9837           0.9836           0.9916           0.9536           0.9952
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.6 1.6 1.7 1.8 1.9 2.0 2.1, 2.2 2.3 2.4 2.5	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.6554           0.6915           0.7257           0.7680           0.7951           0.7591           0.8413           0.8443           0.9032           0.9192           0.9332           0.9452           0.9554           0.9641           0.9772           0.9821           0.9853           0.9918           0.9938	0.4562 0.4960 0.5040 0.5438 0.6217 0.62591 0.6250 0.7291 0.7611 0.7910 0.8136 0.8438 0.8665 0.8869 0.9049 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564 0.9649 0.9719 0.9778 0.9826 0.9886 0.9886 0.9886 0.9886 0.9886 0.9920 0.9940	0.4522           0.4920           0.5080           0.5478           0.6255           0.6628           0.7324           0.7642           0.7939           0.8212           0.8461           0.8686           0.9222           0.9474           0.9573           0.9276           0.9783           0.9888           0.9726           0.9783           0.9868           0.9898           0.9922           0.9941	0.4483           0.4880           0.5120           0.5517           0.5910           0.66293           0.6664           0.7019           0.7357           0.7673           0.7967           0.8238           0.8485           0.8708           0.9236           0.9236           0.9434           0.9543           0.9763           0.9763           0.9543           0.9834           0.9834           0.9825           0.9943	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.704           0.7995           0.8264           0.8264           0.8251           0.9099           0.9251           0.95951           0.9591           0.9793           0.9793           0.9838           0.9793           0.9804           0.9904	0.4404           0.4801           0.5199           0.5596           0.5987           0.6368           0.736           0.7088           0.7734           0.8023           0.8289           0.8531           0.8749           0.8255           0.9394           0.9265           0.9394           0.9505           0.9798           0.9798           0.9342           0.9342           0.9378           0.9394	0.4364           0.4761           0.5239           0.5636           0.6026           0.5406           0.7123           0.7454           0.7764           0.8051           0.8315           0.8554           0.9962           0.9131           0.92615           0.9608           0.9303           0.9846           0.9931           0.9948           0.9961	0.4325           0.4721           0.5279           0.6675           0.6064           0.6443           0.6808           0.7157           0.7486           0.794           0.8078           0.8340           0.8177           0.8078           0.8340           0.8277           0.98980           0.9147           0.9292           0.9418           0.9525           0.9615           0.9850           0.9850           0.9850           0.9854           0.9932           0.9962	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.5844           0.7517           0.7823           0.8106           0.8365           0.8365           0.8365           0.8365           0.8365           0.9362           0.9306           0.9429           0.9535           0.9625           0.9535           0.9625           0.9535           0.9625           0.9535           0.9625           0.9535           0.9625           0.9535           0.9625           0.9854           0.9934           0.9951           0.9951	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           0.3899           0.3521           0.9015           0.9015           0.9177           0.9319           0.9441           0.9545           0.9633           0.9767           0.9857           0.9857           0.9536           0.9952           0.9964
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.6 1.6 1.7 1.8 1.9 2.0 2.1, 2.2 2.3 2.4 2.5 2.5	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.8554           0.6915           0.7257           0.7580           0.7931           0.8413           0.8443           0.8443           0.9032           0.9152           0.9452           0.9554           0.9641           0.9772           0.9821           0.9893           0.9918           0.9953	0.4562 0.4960 0.5040 0.5438 0.6217 0.62591 0.6250 0.7291 0.7291 0.7611 0.7910 0.8438 0.8665 0.8438 0.8665 0.8869 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564 0.9649 0.9719 0.9778 0.9826 0.9886 0.9886 0.9886 0.9886 0.9886 0.9886 0.9886 0.98920 0.9940 0.9955	0.4522           0.4920           0.5080           0.5478           0.62871           0.6255           0.6628           0.7324           0.7642           0.7939           0.8212           0.8461           0.8686           0.9066           0.9222           0.9474           0.9556           0.9783           0.9888           0.9726           0.9783           0.9888           0.9726           0.9783           0.9888           0.9922           0.9941           0.9956	0.4483           0.4880           0.5120           0.5517           0.5910           0.66293           0.6664           0.7019           0.7357           0.7673           0.7967           0.8238           0.8485           0.8708           0.9236           0.9236           0.9434           0.9562           0.9564           0.9783           0.9834           0.9834           0.9901           0.9925           0.9943	0.4443           0.4840           0.5160           0.5557           0.5948           0.6700           0.7054           0.7389           0.704           0.7995           0.8264           0.8208           0.9251           0.9382           0.9495           0.9591           0.9591           0.9738           0.9838           0.9875           0.9904           0.9927           0.9959	0.4404           0.4801           0.5199           0.5596           0.5987           0.6368           0.736           0.7088           0.7734           0.8023           0.8289           0.8531           0.8749           0.8944           0.9115           0.9394           0.9555           0.9394           0.9555           0.9788           0.9778           0.9788           0.9788           0.9788           0.9788           0.9788           0.9798           0.9342           0.9342           0.9342           0.929           0.92946	2.4364 0.4761 0.5239 0.5636 0.6026 0.6406 0.6772 0.7123 0.7454 0.7764 0.8051 0.8051 0.8315 0.8554 0.8770 0.8962 0.9131 0.9279 0.9406 0.9515 0.9608 0.95615 0.9608 0.9608 0.9750 0.9303 0.9846 0.9981 0.9909 0.9931 0.9948	0.4325           0.4721           0.5279           0.5675           0.6064           0.5443           0.6808           9.7157           0.7486           0.7794           0.8340           0.8378           0.8340           0.8730           0.8380           0.9147           0.9292           0.3418           0.9525           0.9616           0.9525           0.9850           0.9850           0.9850           0.9851           0.9932           0.9949           0.9962           0.9972	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.5714           0.5714           0.6103           0.6480           0.5714           0.5717           0.7517           0.7523           0.8106           0.8365           0.8559           0.8810           0.8365           0.9462           0.9308           0.9429           0.9535           0.9625           0.9639           0.9761           0.9854           0.9854           0.9934           0.9951           0.9963           0.9973	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           0.8221           0.8231           0.9015           0.9177           0.9319           0.9441           0.9545           0.9633           0.9767           0.9857           0.9857           0.9536           0.9952           0.9952           0.9954
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.6 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.7	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.6554           0.7257           0.7680           0.7951           0.7591           0.7580           0.7951           0.8413           0.8643           0.9032           0.9192           0.9332           0.9452           0.9554           0.9641           0.9772           0.9821           0.9861           0.9938           0.9953           0.99453	0.4562 0.4960 0.5040 0.5438 0.6217 0.6253 0.6217 0.6253 0.7291 0.7291 0.7291 0.7611 0.7910 0.8196 0.8438 0.8665 0.8869 0.9049 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564 0.9649 0.9719 0.9778 0.9826 0.9826 0.9826 0.9920 0.9940 0.9955 0.9966	0.4522           0.4920           0.5080           0.5478           0.62871           0.6255           0.6628           0.6985           0.7324           0.7642           0.7939           0.8212           0.8461           0.8686           0.9066           0.9222           0.9357           0.9474           0.9573           0.9656           0.9783           0.9888           0.9888           0.9726           0.9783           0.9898           0.9922           0.9941           0.9956           0.9967	0.4483           0.4880           0.5120           0.5517           0.5910           0.664           0.7019           0.7357           0.7673           0.7673           0.8485           0.8423           0.7673           0.7967           0.8238           0.8407           0.9082           0.9236           0.9370           0.9484           0.9732           0.9783           0.9783           0.9834           0.9925           0.9943           0.9925           0.9943           0.9957           0.9968	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7054           0.7054           0.7054           0.7095           0.8264           0.8208           0.9495           0.9099           0.9251           0.9382           0.9495           0.9591           0.9738           0.9793           0.9838           0.9793           0.9838           0.9827           0.9945           0.9959           0.9251	0.4404           0.4801           0.5199           0.5556           0.5387           0.6368           0.736           0.738           0.738           0.736           0.738           0.736           0.738           0.738           0.734           0.8023           0.8531           0.8749           0.8944           0.9115           0.9265           0.9394           0.9505           0.9599           0.9678           0.9798           0.9342           0.9878           0.9929           0.9946           0.9960           0.9970	0.4364           0.4761           0.5239           0.5636           0.6026           0.6406           0.7123           0.7454           0.764           0.8051           0.8554           0.8770           0.8962           0.9131           0.9279           0.9406           0.9515           0.9608           0.9750           0.9846           0.9931           0.9943           0.9943           0.9951	0.4325           0.4721           0.5279           0.6675           0.6064           0.6443           0.6808           0.7157           0.7486           0.794           0.8078           0.8340           0.8177           0.8078           0.8340           0.8277           0.98980           0.9147           0.9292           0.9418           0.9525           0.9615           0.9850           0.9850           0.9850           0.9854           0.9932           0.9962	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.5844           0.7517           0.7823           0.8106           0.8365           0.8365           0.8365           0.8365           0.8365           0.9362           0.9306           0.9429           0.9535           0.9625           0.9535           0.9625           0.9535           0.9625           0.9535           0.9625           0.9535           0.9625           0.9535           0.9625           0.9854           0.9934           0.9951           0.9951	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           0.8221           0.8321           0.9015           0.9177           0.9319           0.9441           0.9545           0.9633           0.9767           0.9857           0.9857           0.9857           0.9952           0.9952           0.9952           0.9952           0.9952           0.9952           0.9952
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.6 1.6 1.7 1.8 1.9 2.0 2.1, 2.2 2.3 2.4 2.5 2.5	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.8554           0.6915           0.7257           0.7680           0.7931           0.8413           0.8443           0.8443           0.9032           0.9152           0.9452           0.9554           0.9641           0.9772           0.9821           0.9893           0.9918           0.9953	0.4562 0.4960 0.5040 0.5438 0.6217 0.6253 0.6217 0.6253 0.7291 0.7291 0.7611 0.7910 0.8156 0.8438 0.8665 0.8869 0.9049 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564 0.9649 0.9719 0.9778 0.9826 0.9826 0.9826 0.9920 0.9940 0.9955 0.9966 0.9975	0.4522           0.4920           0.5080           0.5478           0.6255           0.6628           0.6985           0.7324           0.7642           0.7939           0.8212           0.8461           0.8686           0.9065           0.9222           0.9357           0.9474           0.9573           0.9656           0.9726           0.9783           0.9830           0.9888           0.9922           0.9941           0.9956           0.9927           0.9941           0.9956           0.9957	0.4483           0.4880           0.5120           0.5517           0.5517           0.5910           0.6664           0.7019           0.7357           0.7673           0.7673           0.7967           0.8238           0.8485           0.8708           0.8907           0.9082           0.9236           0.9370           0.9434           0.9582           0.9732           0.9783           0.9834           0.9825           0.9943           0.9925           0.9943           0.9957           0.9968           0.9977	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8225           0.9099           0.9251           0.9382           0.9495           0.9591           0.9738           0.9793           0.98382           0.9793           0.9793           0.9251           0.93825           0.9495           0.9591           0.9591           0.9738           0.9793           0.9838           0.9827           0.9927           0.9959           0.9959           0.9959           0.9959           0.9959           0.9959	0.4404           0.4801           0.5199           0.5596           0.5387           0.6368           0.736           0.738           0.738           0.738           0.738           0.738           0.738           0.738           0.734           0.8023           0.8531           0.8749           0.8944           0.9115           0.9265           0.9394           0.9505           0.9599           0.9678           0.9744           0.9798           0.9942           0.9878           0.9929           0.9946           0.9970           0.9970	0.4364           0.4761           0.5239           0.5636           0.6026           0.6406           0.7123           0.7454           0.7764           0.8051           0.8554           0.9406           0.9131           0.9279           0.9406           0.9515           0.9608           0.9303           0.9846           0.9931           0.9943           0.9943           0.9971	0.4325           0.4721           0.5279           0.6054           0.6443           0.6808           0.7157           0.7486           0.7794           0.8078           0.8340           0.8577           0.8380           0.9147           0.9292           0.3418           0.9525           0.9616           0.9756           0.9850           0.9850           0.9850           0.9851           0.9932           0.9949           0.9952           0.9972           0.9972	0.4286           0.4681           0.5313           0.5714           0.6103           0.6480           0.5714           0.5714           0.6103           0.6480           0.5714           0.5717           0.7517           0.7523           0.8106           0.8365           0.8559           0.8810           0.8365           0.9462           0.9308           0.9429           0.9535           0.9625           0.9639           0.9761           0.9854           0.9854           0.9934           0.9951           0.9963           0.9973	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           0.8221           0.8231           0.9015           0.9177           0.9319           0.9441           0.9545           0.9633           0.9767           0.9857           0.9857           0.9536           0.9952           0.9952           0.9954
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.6 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.7	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.6554           0.7257           0.7680           0.7951           0.7591           0.7580           0.7951           0.8413           0.8643           0.9032           0.9192           0.9332           0.9452           0.9554           0.9641           0.9772           0.9821           0.9861           0.9938           0.9953           0.99453	0.4562 0.4960 0.5040 0.5438 0.6217 0.6253 0.6217 0.6253 0.7291 0.7291 0.7291 0.7611 0.7910 0.8196 0.8438 0.8665 0.8869 0.9049 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564 0.9649 0.9719 0.9778 0.9826 0.9826 0.9826 0.9920 0.9940 0.9955 0.9966	0.4522           0.4920           0.5080           0.5478           0.6871           0.6255           0.6628           0.6985           0.7324           0.7642           0.7939           0.8212           0.8461           0.8886           0.9066           0.9222           0.9357           0.9474           0.9573           0.9656           0.9726           0.9783           0.98808           0.9922           0.9941           0.9956           0.9941           0.9976           0.9982	0.4483           0.4880           0.5120           0.5517           0.5517           0.5517           0.6664           0.7019           0.7357           0.7673           0.7673           0.7867           0.8238           0.8485           0.8907           0.9082           0.9236           0.9370           0.9434           0.9582           0.9664           0.9732           0.9834           0.9834           0.9871           0.9901           0.9943           0.9957           0.9968           0.9977           0.9983	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8225           0.9099           0.9251           0.9382           0.9495           0.9591           0.9251           0.9382           0.9495           0.9591           0.9251           0.9382           0.9495           0.9591           0.92591           0.92591           0.92591           0.92591           0.92591           0.92591           0.92591           0.92591           0.92591           0.9259           0.9259           0.9259           0.9269           0.9269           0.9269           0.9277           0.9984	0.4404           0.4801           0.5199           0.5596           0.53987           0.6368           0.736           0.736           0.736           0.736           0.736           0.738           0.736           0.736           0.738           0.739           0.8739           0.8531           0.8749           0.8944           0.9115           0.9265           0.9394           0.9505           0.9599           0.9678           0.9744           0.9342           0.9342           0.9378           0.9929           0.9946           0.9929           0.9970           0.9970           0.9984	0.4364           0.4761           0.5239           0.5636           0.6026           0.6406           0.7123           0.7454           0.7764           0.8051           0.8554           0.9315           0.9406           0.9515           0.9608           0.9750           0.9303           0.9846           0.9931           0.9948           0.9971           0.9985	0.4325           0.4721           0.5279           0.5675           0.6064           0.5443           0.6808           0.7157           0.7486           0.7794           0.8078           0.8340           0.8340           0.8770           0.8340           0.8147           0.8292           0.9418           0.9525           0.9616           0.9693           0.9756           0.9884           0.9932           0.9962           0.9972           0.9935	0.4286           0.4681           0.5313           0.5714           0.6103           0.5480           0.714           0.6103           0.5714           0.710           0.7517           0.7823           0.8106           0.8559           0.8559           0.8162           0.9306           0.9429           0.9535           0.9625           0.9625           0.9854           0.9854           0.9854           0.9951           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9954           0.9956	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           0.8221           0.8321           0.9015           0.9177           0.9319           0.9441           0.9545           0.9633           0.9767           0.9857           0.9857           0.9857           0.9952           0.9952           0.9952           0.9952           0.9952           0.9952           0.9952
-8.1 -0.0 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1, 2.2 2.3 2.4 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.6554           0.6915           0.7257           0.7580           0.7931           0.8413           0.8413           0.8439           0.9032           0.9192           0.9332           0.9452           0.9554           0.9641           0.9772           0.9821           0.9918           0.9918           0.9953           0.9953           0.9953           0.9954	0.4562 0.4960 0.5040 0.5438 0.6217 0.6253 0.6217 0.6253 0.7291 0.7291 0.7611 0.7910 0.8156 0.8438 0.8665 0.8869 0.9049 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564 0.9649 0.9719 0.9778 0.9826 0.9826 0.9826 0.9920 0.9940 0.9955 0.9966 0.9975	0.4522           0.4920           0.5080           0.5478           0.6255           0.6628           0.6985           0.7324           0.7642           0.7939           0.8212           0.8461           0.8686           0.9065           0.9222           0.9357           0.9474           0.9573           0.9656           0.9726           0.9783           0.9830           0.9888           0.9922           0.9941           0.9956           0.9927           0.9941           0.9956           0.9957	0.4483           0.4880           0.5120           0.5517           0.5517           0.5517           0.5517           0.5517           0.5517           0.5517           0.5517           0.6664           0.7019           0.7357           0.7673           0.7967           0.8238           0.8485           0.8708           0.8907           0.9082           0.9236           0.9370           0.9434           0.9582           0.9732           0.9732           0.9733           0.9834           0.9825           0.9943           0.9925           0.9943           0.9957           0.9968           0.9977	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8225           0.9099           0.9251           0.9382           0.9495           0.9591           0.9251           0.9382           0.9495           0.9591           0.9251           0.9382           0.9495           0.9591           0.92591           0.92591           0.92591           0.92591           0.92591           0.92591           0.92591           0.92591           0.92591           0.9259           0.9959           0.9959           0.9959           0.9959           0.9959           0.9984           0.9988	0.4404           0.4801           0.5199           0.5596           0.53987           0.6368           0.736           0.736           0.736           0.736           0.736           0.738           0.736           0.736           0.738           0.739           0.8739           0.8531           0.8749           0.8944           0.9115           0.9265           0.9394           0.9505           0.9599           0.9678           0.9798           0.9342           0.9370           0.9929           0.9960           0.9970           0.9970           0.9984           0.9989	2.4364           0.4761           0.5239           0.5636           0.6026           0.6406           0.7123           0.7454           0.7764           0.8051           0.8554           0.9315           0.9406           0.9515           0.9608           0.9750           0.9303           0.9386           0.99515           0.9099           0.9948           0.9948           0.9971           0.9985           0.9989	0.4325           0.4721           0.5279           0.6054           0.6064           0.6443           0.6808           0.7157           0.7486           0.7794           0.8078           0.8340           0.8340           0.878           0.8340           0.878           0.8340           0.878           0.8340           0.8790           0.8980           0.9147           0.9292           0.9418           0.9525           0.9615           0.9623           0.9756           0.9808           0.9824           0.9932           0.9962           0.9972           0.9935           0.9989	0.4286           0.4681           0.5313           0.5714           0.6103           0.5480           0.7517           0.7823           0.8106           0.8559           0.8420           0.8106           0.8559           0.8106           0.8162           0.9306           0.9429           0.9535           0.9625           0.9625           0.9854           0.9854           0.9951           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9953           0.9954           0.9956           0.9986	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7552           0.8133           0.8521           0.8389           0.3521           0.8330           0.9015           0.9177           0.9319           0.9441           0.9545           0.9633           0.9706           0.9767           0.9837           0.9836           0.9916           0.9536           0.9952           0.9964           0.9921           0.9536           0.9930
-8.1           -0.0           0.1           0.2           0.3           0.4           0.5           0.6           0.7           0.8           0.9           1.0           1.1           1.2           1.3           1.4           1.5           1.6           1.7           1.8           1.9           2.0           2.1           2.3           2.4           2.5           2.6           2.7           2.8           2.9           3.0	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.6554           0.6915           0.7257           0.7580           0.793           0.8413           0.8443           0.9032           0.9192           0.9332           0.9452           0.9554           0.9713           0.9772           0.9861           0.9983           0.9918           0.99453           0.99451           0.99451	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6253 0.7291 0.7291 0.7611 0.7910 0.8196 0.8438 0.8665 0.8869 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564 0.9564 0.9564 0.95719 0.9778 0.9864 0.9864 0.9864 0.9864 0.99955 0.9940 0.99955 0.9940	0.4522           0.4920           0.5080           0.5478           0.6871           0.6255           0.6628           0.6985           0.7324           0.7642           0.7939           0.8212           0.8461           0.8886           0.9066           0.9222           0.9357           0.9474           0.9573           0.9656           0.9726           0.9783           0.98808           0.9922           0.9941           0.9956           0.9941           0.9976           0.9982	0.4483           0.4880           0.5120           0.5517           0.5517           0.5517           0.5517           0.5517           0.5517           0.5517           0.5517           0.6664           0.7019           0.7357           0.7673           0.7667           0.8238           0.8485           0.8708           0.8907           0.9082           0.9236           0.9370           0.9434           0.9582           0.9664           0.9732           0.9732           0.9834           0.9871           0.9901           0.9943           0.9957           0.9968           0.9977           0.9983	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8255           0.9099           0.9251           0.9382           0.9495           0.9591           0.9671           0.9738           0.9793           0.9838           0.9875           0.9904           0.9959           0.9977           0.9984           0.9988           0.9992	0.4404           0.4801           0.5199           0.5556           0.5387           0.6368           0.736           0.736           0.738           0.736           0.736           0.738           0.736           0.736           0.738           0.738           0.738           0.739           0.8731           0.8289           0.8531           0.8749           0.8944           0.9115           0.9265           0.9394           0.9505           0.9599           0.9678           0.9744           0.9798           0.9342           0.9979           0.9946           0.9970           0.9970           0.9984           0.9989           0.9992	0.4364           0.4761           0.5239           0.5636           0.6026           0.5406           0.7123           0.7454           0.7764           0.8051           0.8554           0.8962           0.9131           0.9279           0.9406           0.9515           0.9608           0.9303           0.9846           0.9909           0.9948           0.9971           0.9975           0.9985           0.9992	0.4325           0.4721           0.5279           0.5675           0.6064           0.5443           0.5808           0.7157           0.7436           0.7436           0.73794           0.8078           0.8078           0.8340           0.8577           0.8292           0.9418           0.9525           0.9616           0.9623           0.9756           0.9880           0.9850           0.9850           0.9850           0.9911           0.9932           0.9972           0.9935           0.9989	0.4286           0.4681           0.5313           0.5714           0.6103           0.5480           0.7517           0.7823           0.8106           0.8559           0.8462           0.8105           0.8599           0.8162           0.9306           0.9429           0.9535           0.9625           0.9854           0.9854           0.9854           0.9951           0.9951           0.9951           0.9951           0.9986           0.9990           0.9993	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7552           0.8133           0.8221           0.8320           0.9015           0.9015           0.9177           0.9319           0.9441           0.9545           0.9633           0.9706           0.9767           0.9837           0.92916           0.9536           0.9952           0.9974           0.9281           0.9293
-8.1           -0.0           0.1           0.2           0.3           0.4           0.5           0.6           0.7           0.8           0.9           1.0           1.1           1.2           1.3           1.4           1.5           1.6           1.7           1.8           1.9           2.0           2.1,           2.3           2.4           2.5           2.6           2.7           2.8           2.9           3.0           3.1	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.6554           0.6915           0.7257           0.7580           0.7861           0.8643           0.8443           0.9032           0.9152           0.9554           0.9032           0.9192           0.9332           0.9452           0.9554           0.9554           0.9641           0.9772           0.9821           0.9953           0.9953           0.9953           0.9953           0.9974           0.9987           0.9990	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6253 0.7291 0.7291 0.7611 0.7611 0.7611 0.7611 0.7611 0.8196 0.8438 0.8665 0.8869 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564 0.9564 0.9564 0.9564 0.9778 0.9864 0.9864 0.9864 0.9864 0.9955 0.9920 0.9955 0.9955 0.9982 0.9987 0.9987 0.9991	0.4522           0.4920           0.5080           0.5478           0.6255           0.6628           0.6985           0.7324           0.7642           0.7939           0.8212           0.8461           0.8888           0.9066           0.9222           0.9357           0.9474           0.9573           0.9656           0.9726           0.9783           0.9868           0.9980           0.9922           0.9941           0.9956           0.9957           0.9967           0.9982           0.9987           0.9991	0.4483           0.4880           0.5120           0.5517           0.5517           0.5910           0.6293           0.6664           0.7019           0.7357           0.7673           0.7673           0.7867           0.8907           0.9082           0.9236           0.9236           0.9370           0.9434           0.9582           0.9732           0.9732           0.9783           0.9834           0.9971           0.3925           0.9943           0.9957           0.9968           0.9977           0.9983	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8225           0.9099           0.9251           0.9382           0.9495           0.9591           0.9251           0.9382           0.9495           0.9591           0.9251           0.9382           0.9495           0.9591           0.92591           0.92591           0.92591           0.92591           0.92591           0.92591           0.92591           0.92591           0.92591           0.9259           0.9959           0.9959           0.9959           0.9959           0.9959           0.9984           0.9988	0.4404           0.4801           0.5199           0.5596           0.53987           0.6368           0.736           0.736           0.736           0.736           0.736           0.738           0.736           0.736           0.738           0.739           0.8739           0.8531           0.8749           0.8944           0.9115           0.9265           0.9394           0.9505           0.9599           0.9678           0.9798           0.9342           0.9370           0.9929           0.9960           0.9970           0.9970           0.9984           0.9989	0.4364           0.4761           0.5239           0.5636           0.6026           0.5406           0.7123           0.7454           0.7764           0.8051           0.8554           0.8962           0.9131           0.9279           0.9406           0.9515           0.9608           0.9303           0.9846           0.9909           0.9909           0.9948           0.9971           0.9985           0.9992           0.9994	0.4325           0.4721           0.5279           0.5675           0.6064           0.5443           0.5808           0.7157           0.7436           0.7436           0.7794           0.8078           0.8340           0.8340           0.8577           0.8380           0.9147           0.5292           0.9418           0.9525           0.9616           0.9693           0.9756           0.9808           0.9820           0.9911           0.9932           0.9972           0.9972           0.9935           0.9995	0.4286           0.4681           0.5313           0.5714           0.6103           0.5480           0.7517           0.7823           0.8106           0.7823           0.8106           0.8599           0.8106           0.8997           0.9162           0.9306           0.9429           0.9535           0.9625           0.9639           0.9761           0.9854           0.9951           0.9951           0.9951           0.9953           0.9990           0.9951           0.9993           0.9993	0.4541           0.5369           0.5753           0.5141           0.6517           0.3759           0.7224           0.7549           0.7352           0.8133           0.8230           0.9015           0.9177           0.9319           0.9441           0.9543           0.9767           0.9817           0.9857           0.9952           0.9964           0.9921           0.9923           0.9933
-8.1           -0.0           0.1           0.2           0.3           0.4           0.5           0.6           0.7           0.8           0.9           1.0           1.1           1.2           1.3           1.4           1.5           1.6           1.7           1.8           1.9           2.0           2.1.           2.3           2.4           2.5           2.6           2.7           2.8           2.9           3.0           3.1           3.2	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.6554           0.6915           0.7257           0.7580           0.7861           0.8643           0.8413           0.8432           0.9192           0.9332           0.9452           0.9554           0.9332           0.9452           0.9554           0.9554           0.9641           0.9772           0.9861           0.9953           0.9953           0.9953           0.9953           0.9987           0.9993	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6253 0.7291 0.7611 0.7611 0.7611 0.7611 0.7611 0.8186 0.8665 0.8869 0.9049 0.9207 0.9345 0.9463 0.9564 0.9564 0.9564 0.9564 0.9564 0.9864 0.9864 0.9864 0.9886 0.9920 0.9920 0.9920 0.9940 0.9955 0.9940 0.9975 0.9982 0.9987 0.9993	0.4522           0.4920           0.5080           0.5478           0.6255           0.6628           0.6985           0.7324           0.7642           0.7939           0.3212           0.8866           0.9222           0.9357           0.9474           0.9573           0.9656           0.9726           0.9888           0.9868           0.9868           0.9822           0.9976           0.9976           0.9981           0.99941	0.4483           0.4880           0.5120           0.5517           0.5517           0.5517           0.5517           0.5517           0.5517           0.6664           0.7019           0.7357           0.7673           0.7967           0.8238           0.8485           0.8907           0.9082           0.9236           0.9370           0.9434           0.9582           0.9664           0.9732           0.9783           0.9834           0.9825           0.9901           0.9925           0.9943           0.9988           0.9991           0.9994	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8325           0.9099           0.9251           0.9382           0.9495           0.9591           0.9671           0.9738           0.9793           0.9838           0.9875           0.9904           0.9959           0.9969           0.9977           0.9984           0.9992           0.9994	0.4404           0.4801           0.5199           0.5556           0.5387           0.6368           0.736           0.736           0.736           0.736           0.736           0.738           0.736           0.736           0.738           0.738           0.738           0.739           0.8731           0.8289           0.8531           0.8749           0.8944           0.9115           0.9265           0.9394           0.9505           0.9599           0.9678           0.9744           0.9798           0.9342           0.9979           0.9946           0.9970           0.9970           0.9984           0.9989           0.9992	0.4364           0.4761           0.5239           0.5636           0.6026           0.5406           0.7123           0.7454           0.7764           0.8051           0.8554           0.8962           0.9131           0.9279           0.9406           0.9515           0.9608           0.9303           0.9846           0.9909           0.9948           0.9971           0.9975           0.9985           0.9992	0.4325           0.4721           0.5279           0.6057           0.6064           0.6443           0.6808           0.7157           0.7436           0.7436           0.7794           0.8078           0.8340           0.8577           0.8880           0.9147           0.5292           0.9418           0.9525           0.9616           0.9693           0.9755           0.9808           0.9824           0.9911           0.9932           0.9911           0.9932           0.9952           0.9972           0.9935           0.9996           0.9996	0.4286           0.4681           0.5313           0.5714           0.6103           0.5480           0.7517           0.7823           0.8106           0.8365           0.8599           0.8162           0.9306           0.9429           0.9535           0.9625           0.96399           0.9761           0.9854           0.99535           0.9639           0.9551           0.9951           0.9951           0.9951           0.9953           0.9951           0.9953           0.9995           0.9995           0.9995	0.4541           0.5369           0.5753           0.5141           0.6517           0.3759           0.7224           0.7549           0.7552           0.8133           0.8221           0.8329           0.3621           0.8320           0.9015           0.9177           0.9319           0.9441           0.9545           0.9633           0.9706           0.9767           0.9817           0.9857           0.9826           0.9952           0.9964           0.9921           0.9923           0.9935
-8.1           -0.0           0.1           0.2           0.3           0.4           0.5           0.6           0.7           0.8           0.9           1.0           1.1           1.2           1.3           1.4           1.5           1.6           1.7           1.8           1.9           2.0           2.1,           2.3           2.4           2.5           2.6           2.7           2.8           2.9           3.0           3.1	0.4502           0.5000           0.5000           0.5398           0.5793           0.6179           0.6554           0.6915           0.7257           0.7580           0.7861           0.8413           0.8443           0.9032           0.9152           0.9554           0.99152           0.9452           0.9554           0.99554           0.9641           0.9772           0.9821           0.9953           0.9963           0.9918           0.9953           0.9953           0.9987           0.9987           0.9990	0.4562 0.4960 0.5040 0.5438 0.5832 0.6217 0.6253 0.7291 0.7291 0.7611 0.7910 0.8186 0.8655 0.8655 0.8665 0.8659 0.9049 0.9207 0.9345 0.9463 0.9207 0.9345 0.9463 0.9564 0.9564 0.9564 0.95719 0.9778 0.9264 0.9826 0.9826 0.9826 0.9920 0.9925 0.9955 0.9955 0.9955 0.9955 0.9987 0.9993	0.4522           0.4920           0.5080           0.5478           0.6255           0.6628           0.6985           0.7324           0.7642           0.7939           0.8212           0.8461           0.8888           0.9066           0.9222           0.9357           0.9474           0.9573           0.9656           0.9726           0.9783           0.9868           0.9980           0.9922           0.9941           0.9956           0.9957           0.9967           0.9982           0.9987           0.9991	0.4483           0.4880           0.5120           0.5517           0.5517           0.5517           0.5517           0.5517           0.5517           0.5517           0.5517           0.6664           0.7019           0.7357           0.7673           0.7967           0.8238           0.8485           0.8907           0.9082           0.9236           0.9370           0.9434           0.9582           0.9664           0.9732           0.9783           0.9834           0.9825           0.9901           0.9925           0.9943           0.9957           0.9983           0.9988           0.9991	0.4443           0.4840           0.5160           0.5557           0.5948           0.5331           0.6700           0.7054           0.7389           0.7704           0.7995           0.8264           0.8255           0.9099           0.9251           0.9382           0.9495           0.9591           0.9671           0.9738           0.9793           0.9838           0.9875           0.9904           0.9959           0.9977           0.9984           0.9988           0.9992	0.4404           0.4801           0.5199           0.5556           0.5387           0.6368           0.736           0.736           0.738           0.736           0.736           0.738           0.736           0.736           0.738           0.738           0.739           0.8739           0.8531           0.8749           0.8944           0.9115           0.9265           0.9394           0.9505           0.9394           0.9505           0.9798           0.9342           0.9342           0.9906           0.9992           0.9970           0.9970           0.9984           0.9992           0.9994	0.4364           0.4761           0.5239           0.5636           0.6026           0.5406           0.7123           0.7454           0.7764           0.8051           0.8554           0.8962           0.9131           0.9279           0.9406           0.9515           0.9608           0.9303           0.9846           0.9909           0.9909           0.9948           0.9971           0.9985           0.9992           0.9994	0.4325           0.4721           0.5279           0.5675           0.6064           0.5443           0.5808           0.7157           0.7436           0.7436           0.7794           0.8078           0.8340           0.8340           0.8577           0.8380           0.9147           0.5292           0.9418           0.9525           0.9616           0.9693           0.9756           0.9808           0.9820           0.9911           0.9932           0.9972           0.9972           0.9935           0.9995	0.4286           0.4681           0.5313           0.5714           0.6103           0.5480           0.7517           0.7823           0.8106           0.7823           0.8106           0.8599           0.8106           0.8997           0.9162           0.9306           0.9429           0.9535           0.9625           0.9639           0.9761           0.9854           0.9951           0.9951           0.9951           0.9953           0.9990           0.9951           0.9993           0.9993	0.4541           0.5369           0.5753           0.5141           0.6517           0.6379           0.7224           0.7549           0.7352           0.8133           6.8389           0.3521           0.8133           6.8389           0.3521           0.9177           0.9319           0.9441           0.9545           0.9633           0.9706           0.9706           0.9536           0.9536           0.9952           0.9952           0.9964           0.99951           0.9993           0.9993

### Appendix for chapter 5:

The values of standard normal  $Z_{1\text{-}\alpha/2}$  that used I (1- $\alpha)\%$  confident interval

Level of confidence	$Z_{1-\alpha/2}$
99%	2.575
98%	2.33
95%	1.96
90%	1.645
80%	1.28