

# Exploratory Data Analysis (EDA)

Statsomat.com

24 June 2021

## Basic Information

Automatic statistics for the file:

File
HolzingerSwineford1939.csv

Your selection for the encoding: Auto

Your selection for the decimal character: Auto

Observations (rows with at least one non-missing value): 301

Variables (columns with at least one non-missing value): 16

Variables considered continuous: 11

Variables considered continuous
id
V1
x1
x2
x3
x4
x5
x6
x7
x8
x9

Variables considered categorical: 5

Variables considered categorical
agemo
ageyr
grade
school
sex

## Results for Numerical Variables

### Descriptive Statistics

Variables are sorted alphabetically. Missings are omitted in stats. CV only for positive variables.

	N Obs	N Missing	N Valid	% Complete	N Unique	Mean	SD	Median	MAD	Min	Max	Skewness	Kurtosis	CV
id	301	0	301	100	301	176.55	105.94	163	140.85	1	351	-0.01	-1.35	0.6
V1	301	0	301	100	301	151	87.04	151	111.2	1	301	0	-1.2	0.58
x1	301	0	301	100	35	4.94	1.17	5	1.24	0.67	8.5	-0.26	0.36	0.24
x2	301	0	301	100	25	6.09	1.18	6	1.11	2.25	9.25	0.47	0.38	0.19
x3	301	0	301	100	35	2.25	1.13	2.12	1.3	0.25	4.5	0.39	-0.89	0.5
x4	301	0	301	100	20	3.06	1.16	3	0.99	0	6.33	0.27	0.12	
x5	301	0	301	100	25	4.34	1.29	4.5	1.48	1	7	-0.35	-0.53	0.3
x6	301	0	301	100	40	2.19	1.1	2	1.06	0.14	6.14	0.87	0.88	0.5
x7	301	0	301	100	97	4.19	1.09	4.09	1.1	1.3	7.43	0.25	-0.27	0.26
x8	301	0	301	100	84	5.53	1.01	5.5	0.96	3.05	10	0.53	1.24	0.18
x9	301	0	301	100	129	5.37	1.01	5.42	0.99	2.78	9.25	0.21	0.34	0.19

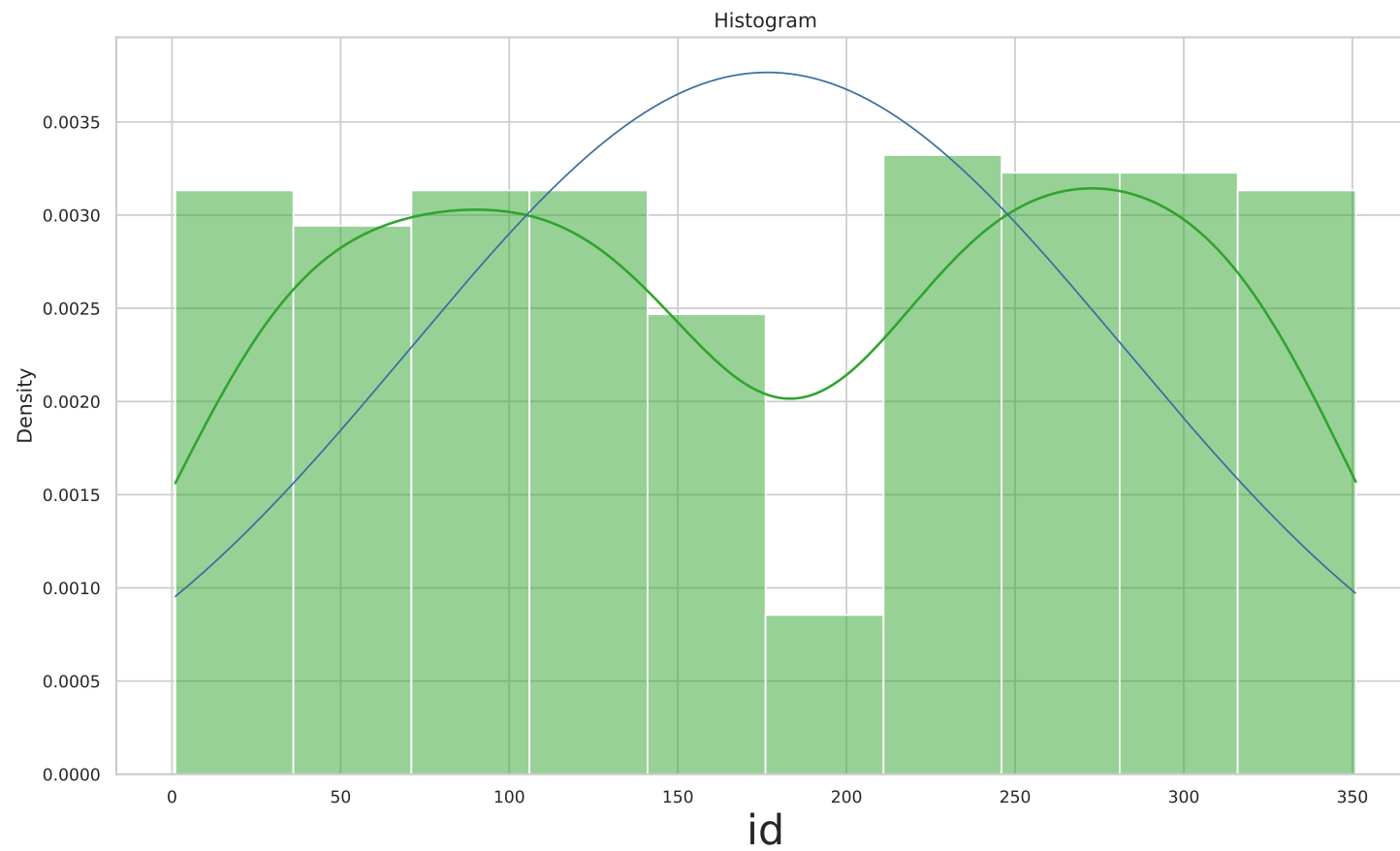
## Graphics

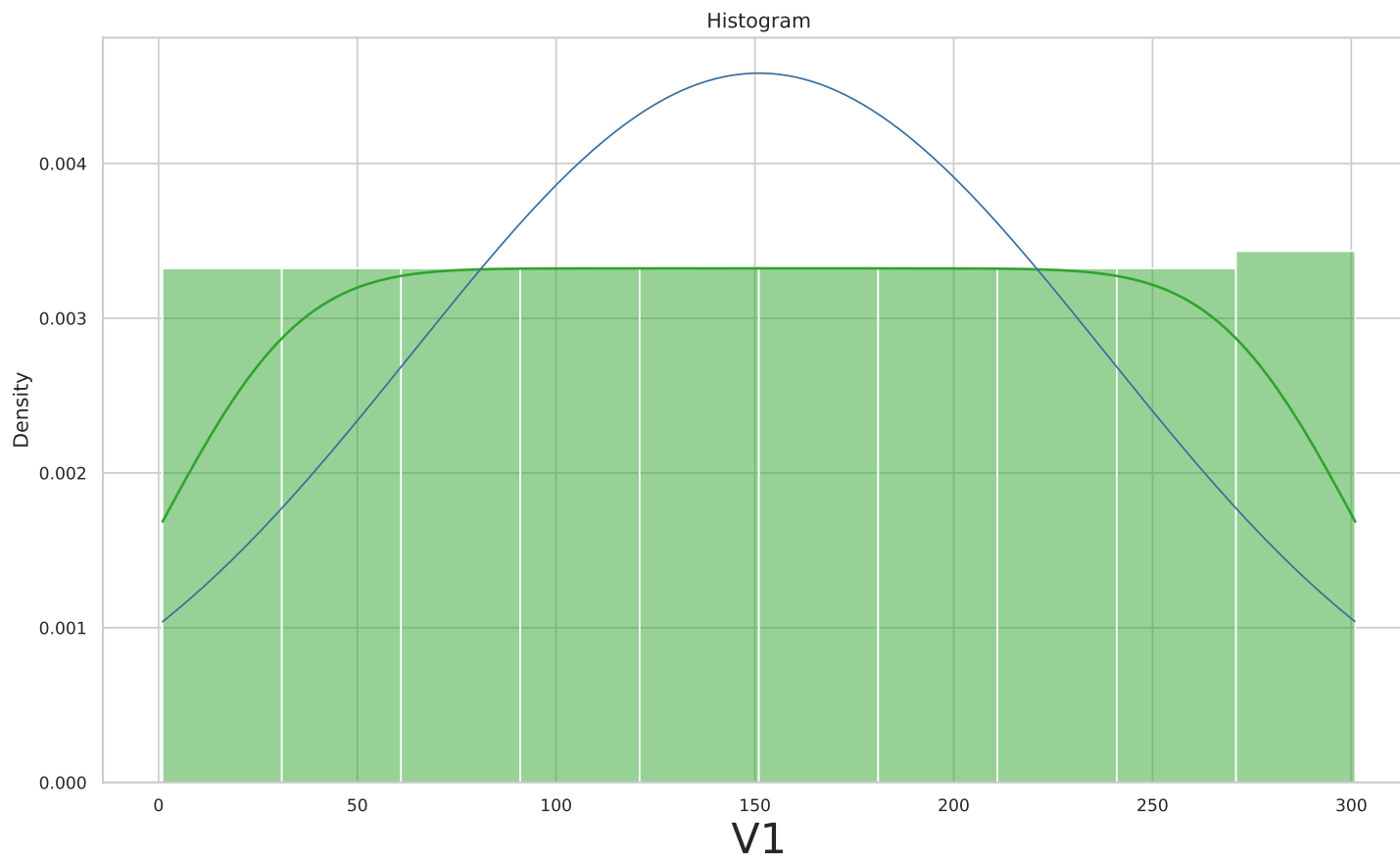
### Histograms

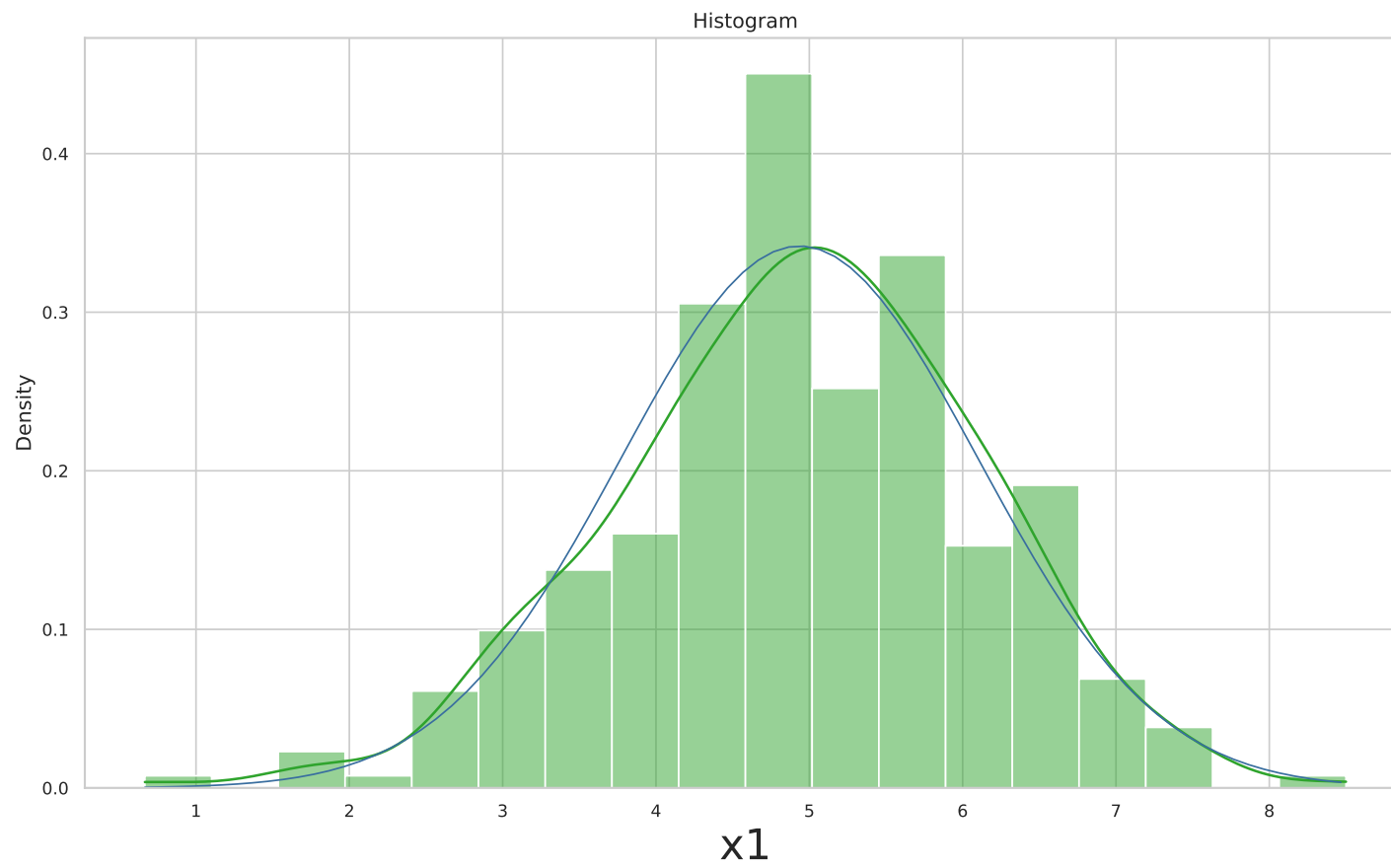
Details: Density Histograms. One large figure per page for each variable, sorted alphabetically. The blue line represents the normal density approximation. The green line represents a special kernel density approximation.

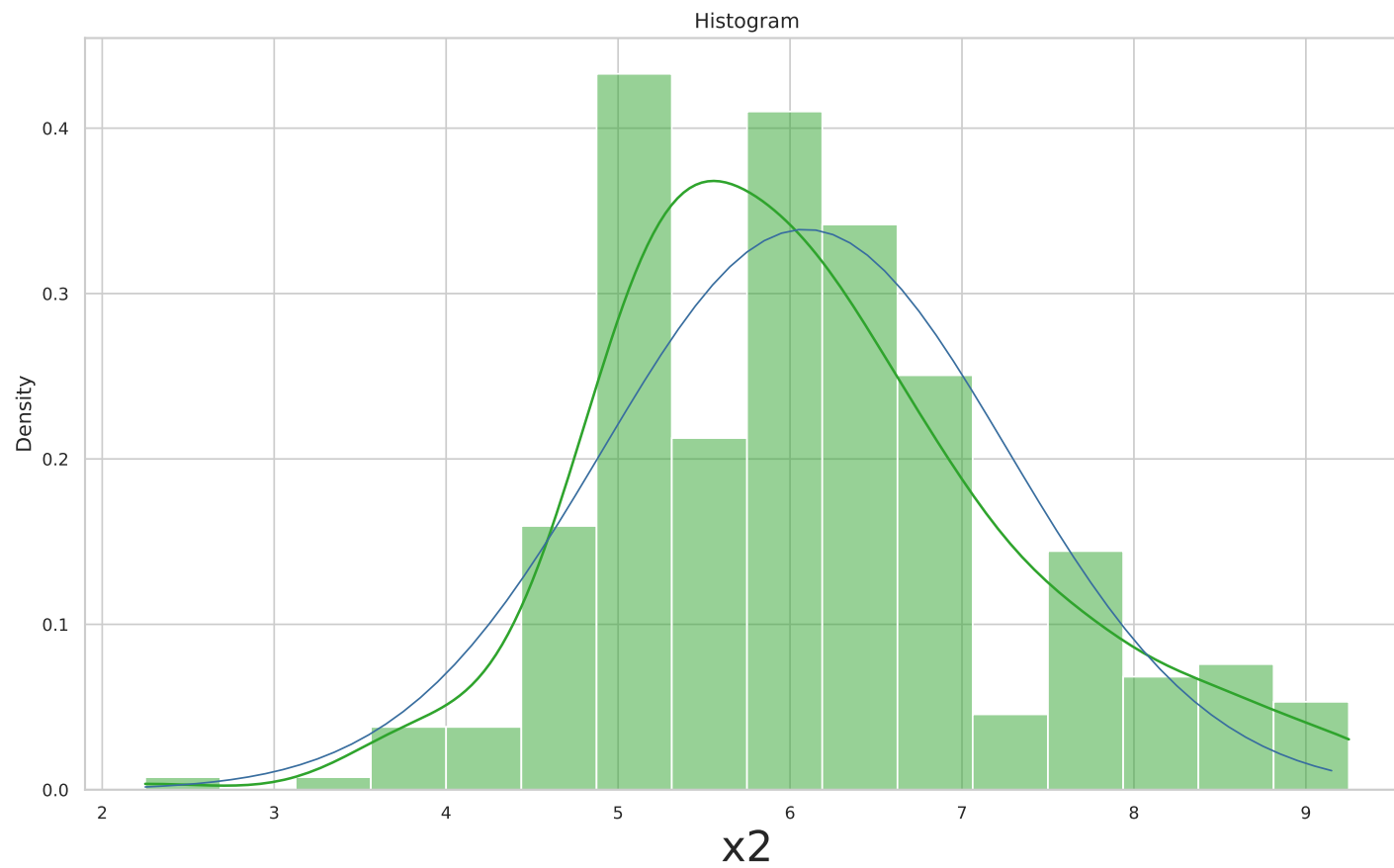
See figures on next page.

□

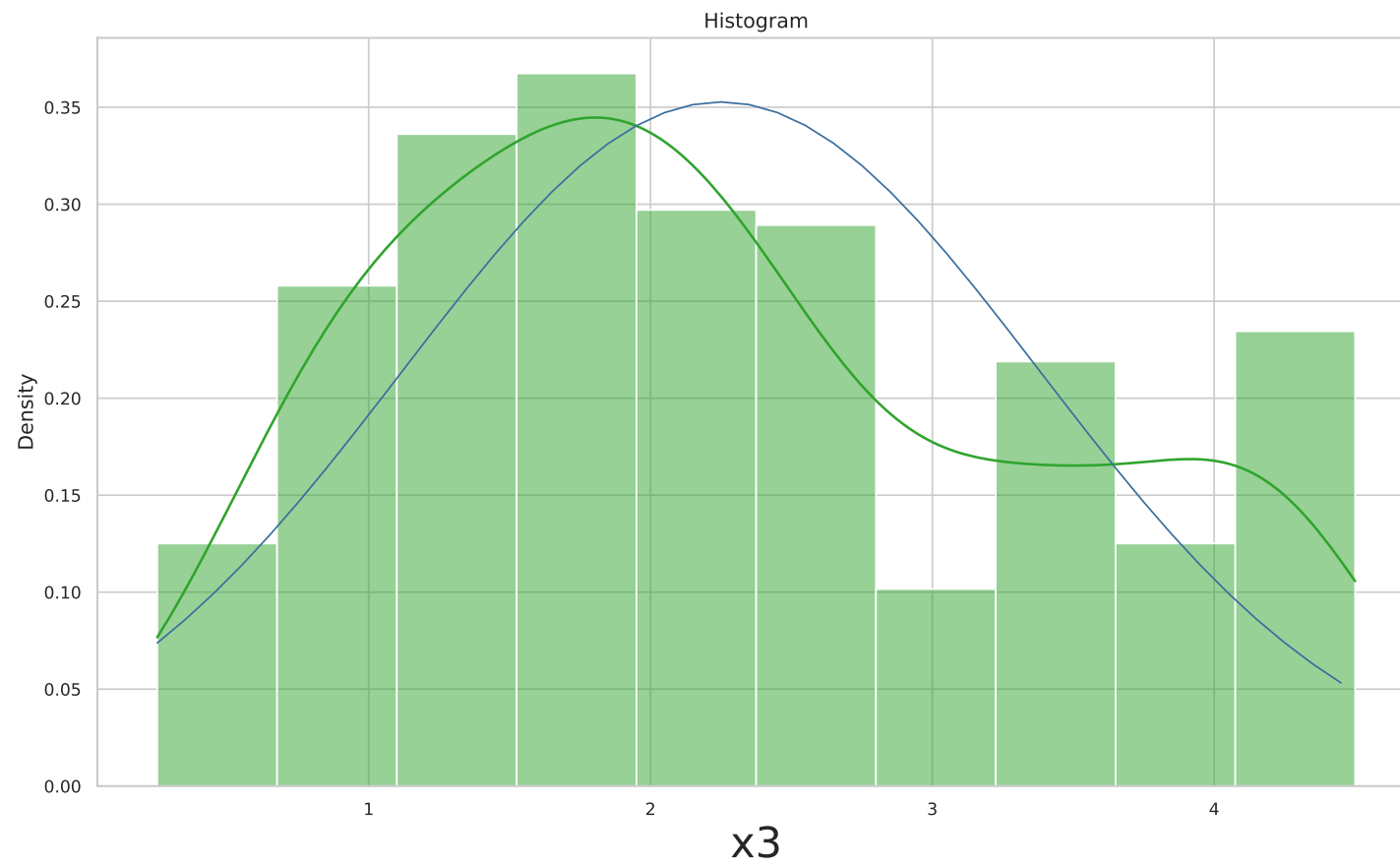


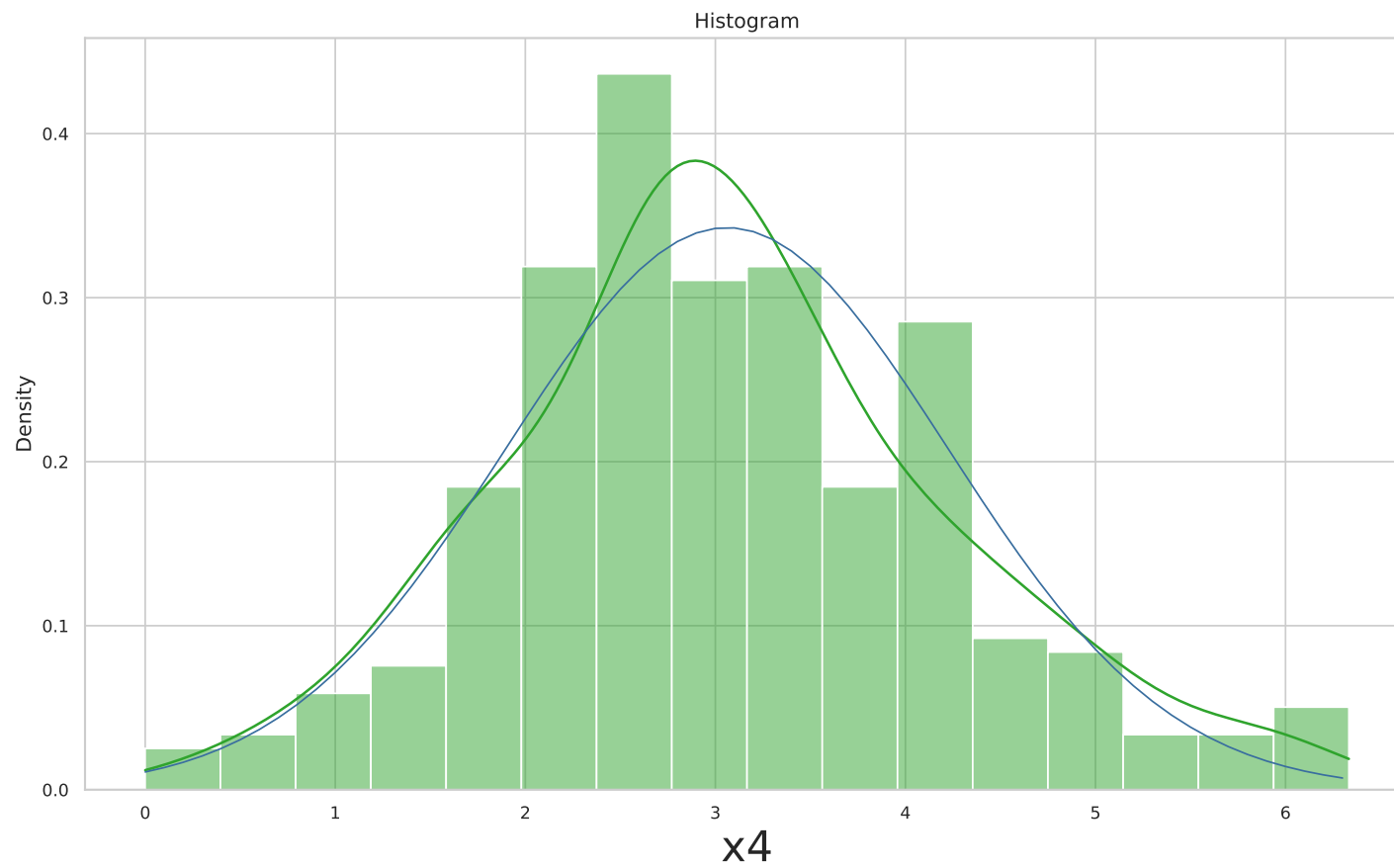


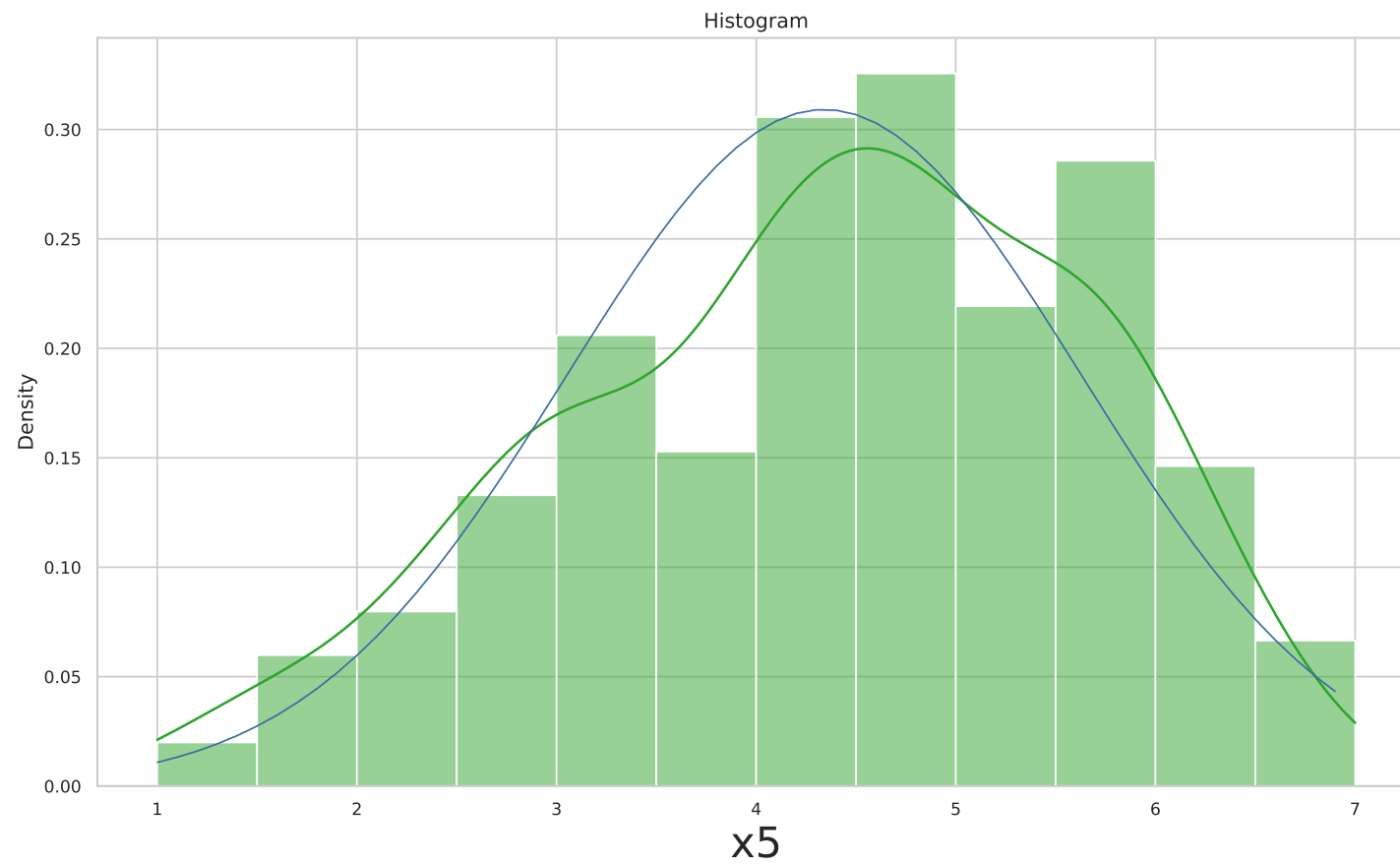


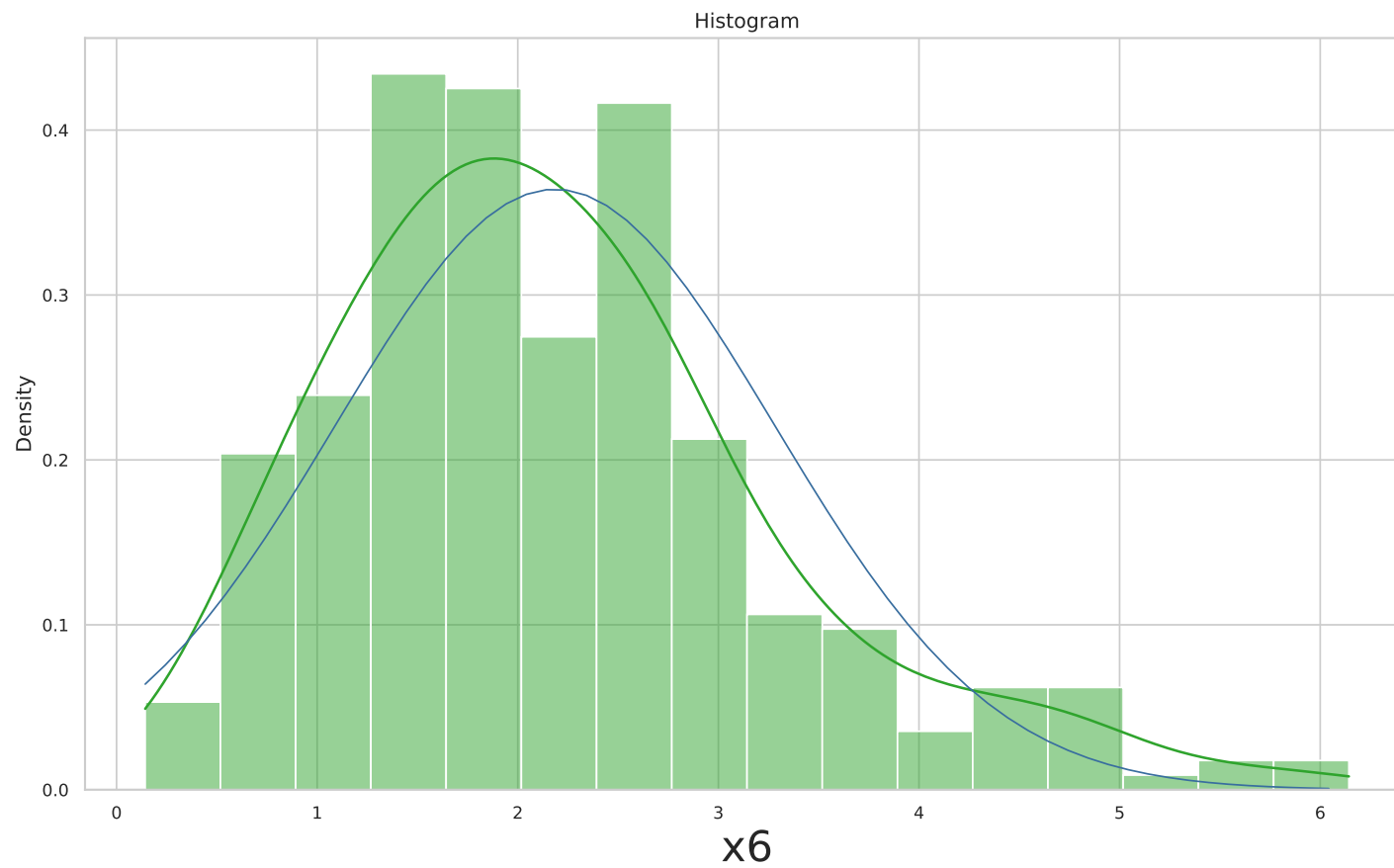


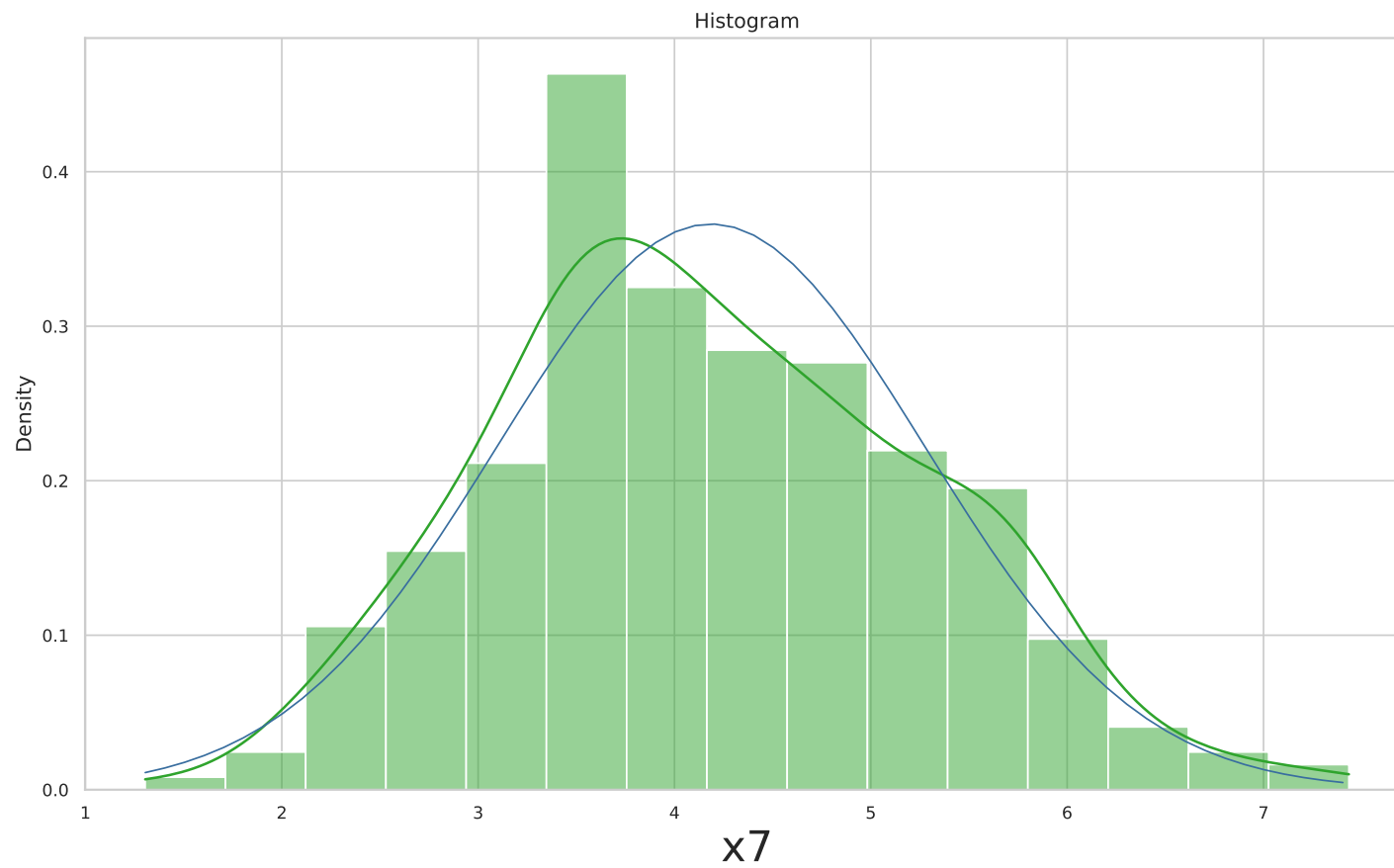


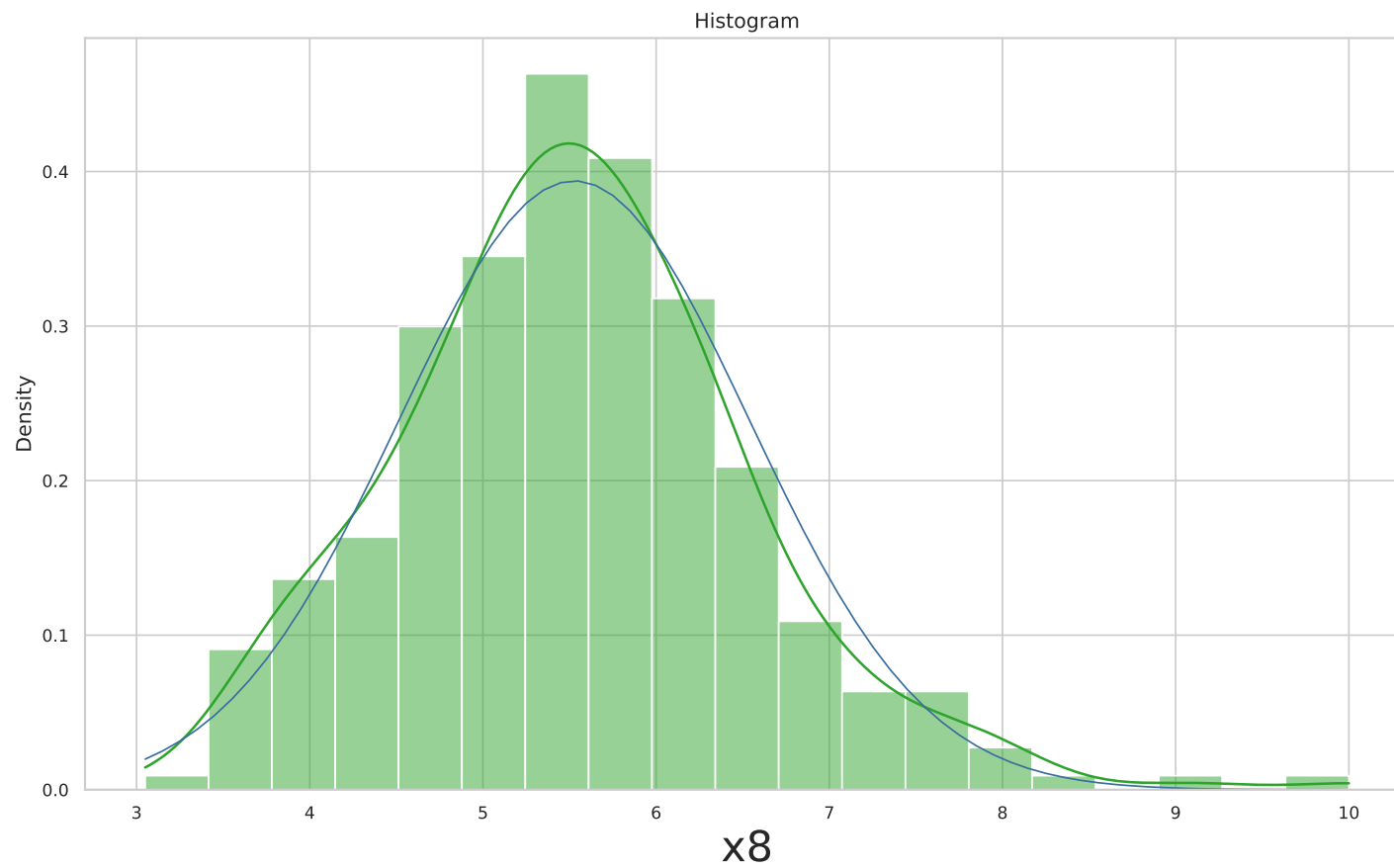


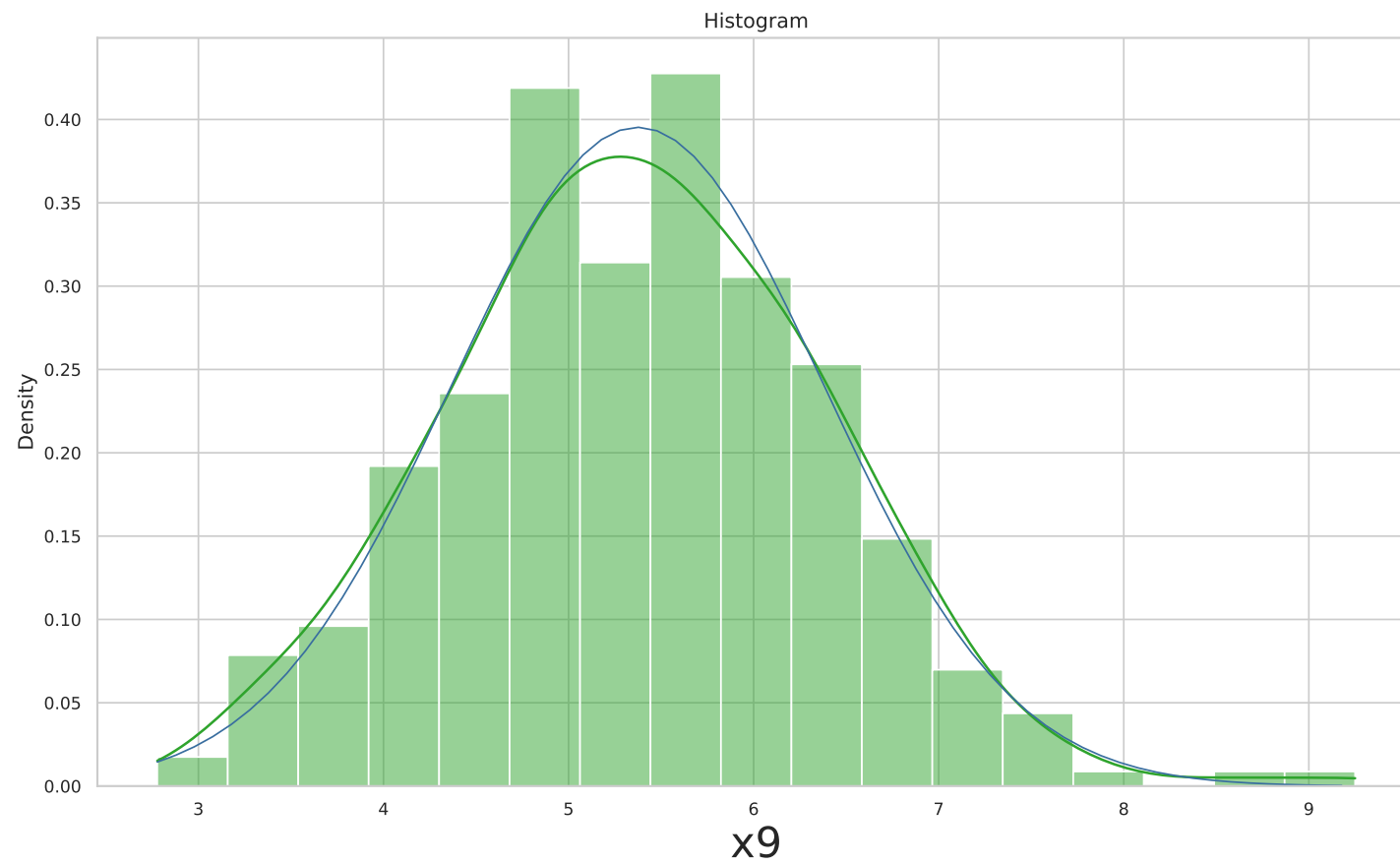






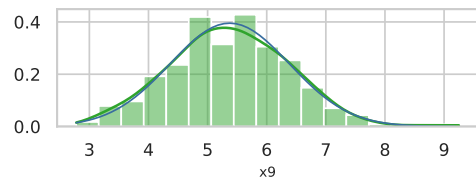
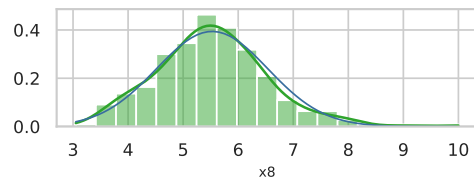
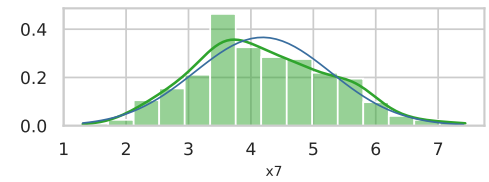
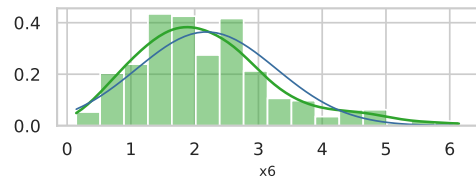
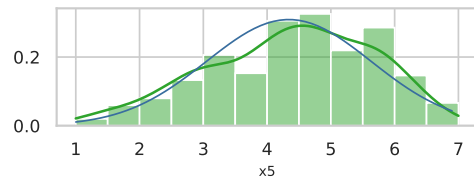
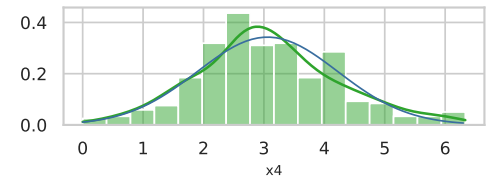
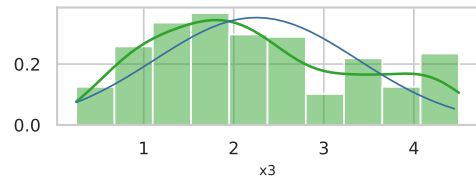
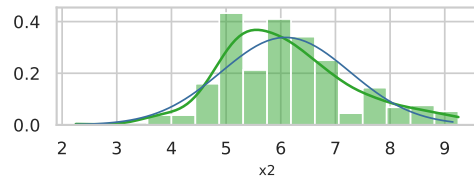
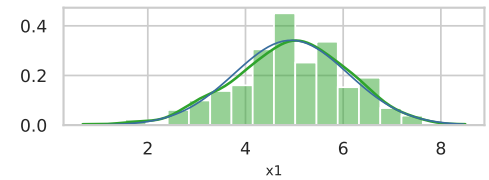
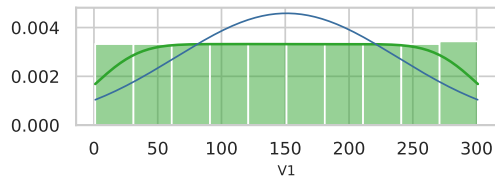
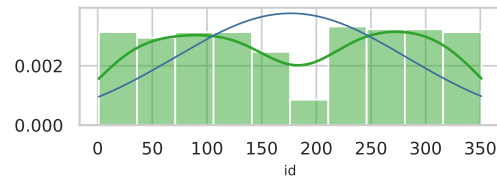






## Histograms Summary

Multiple Relative Frequency Histogram in one figure. Variables are sorted alphabetically. The blue line represents the normal density approximation. The green line represents a special kernel density approximation.

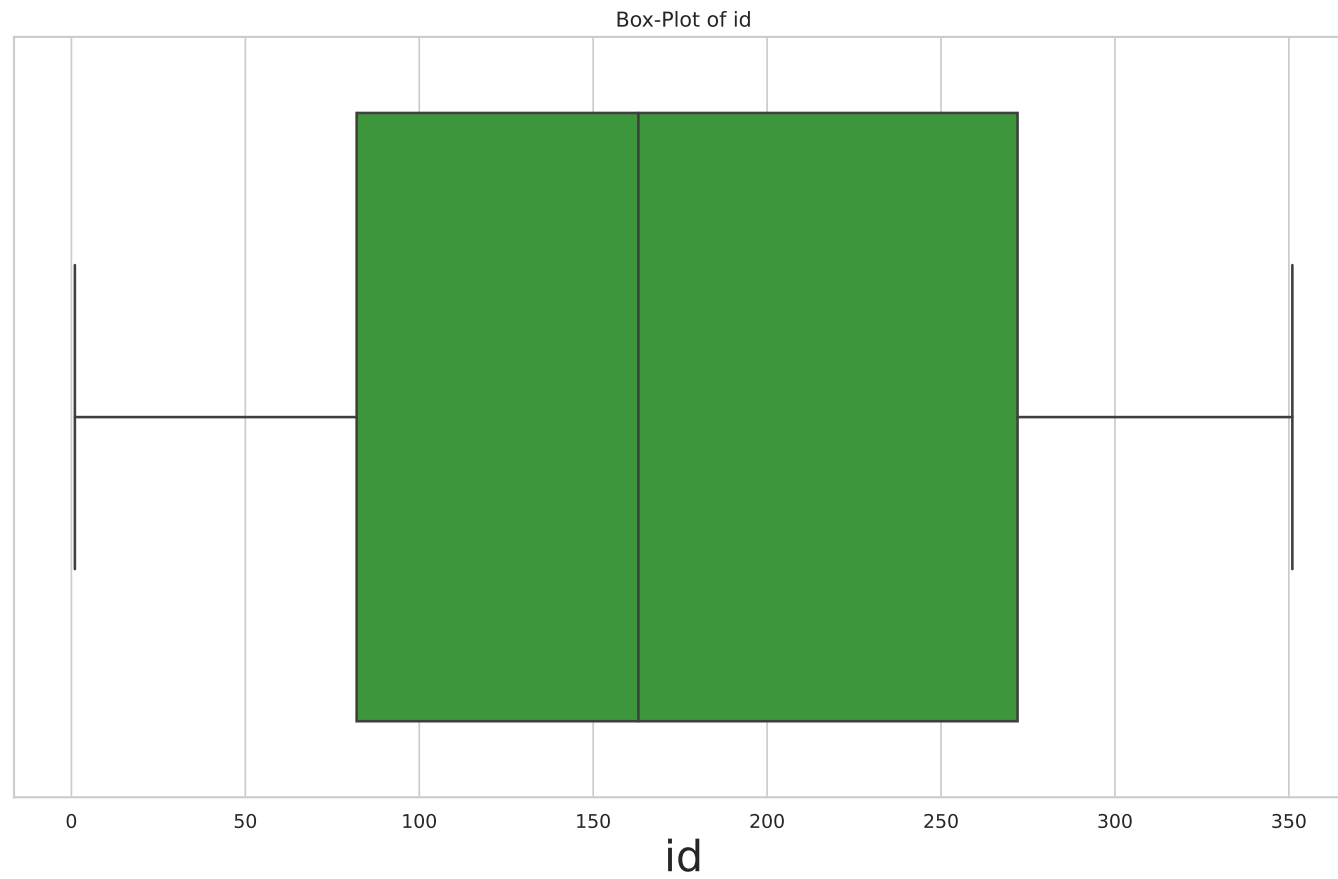


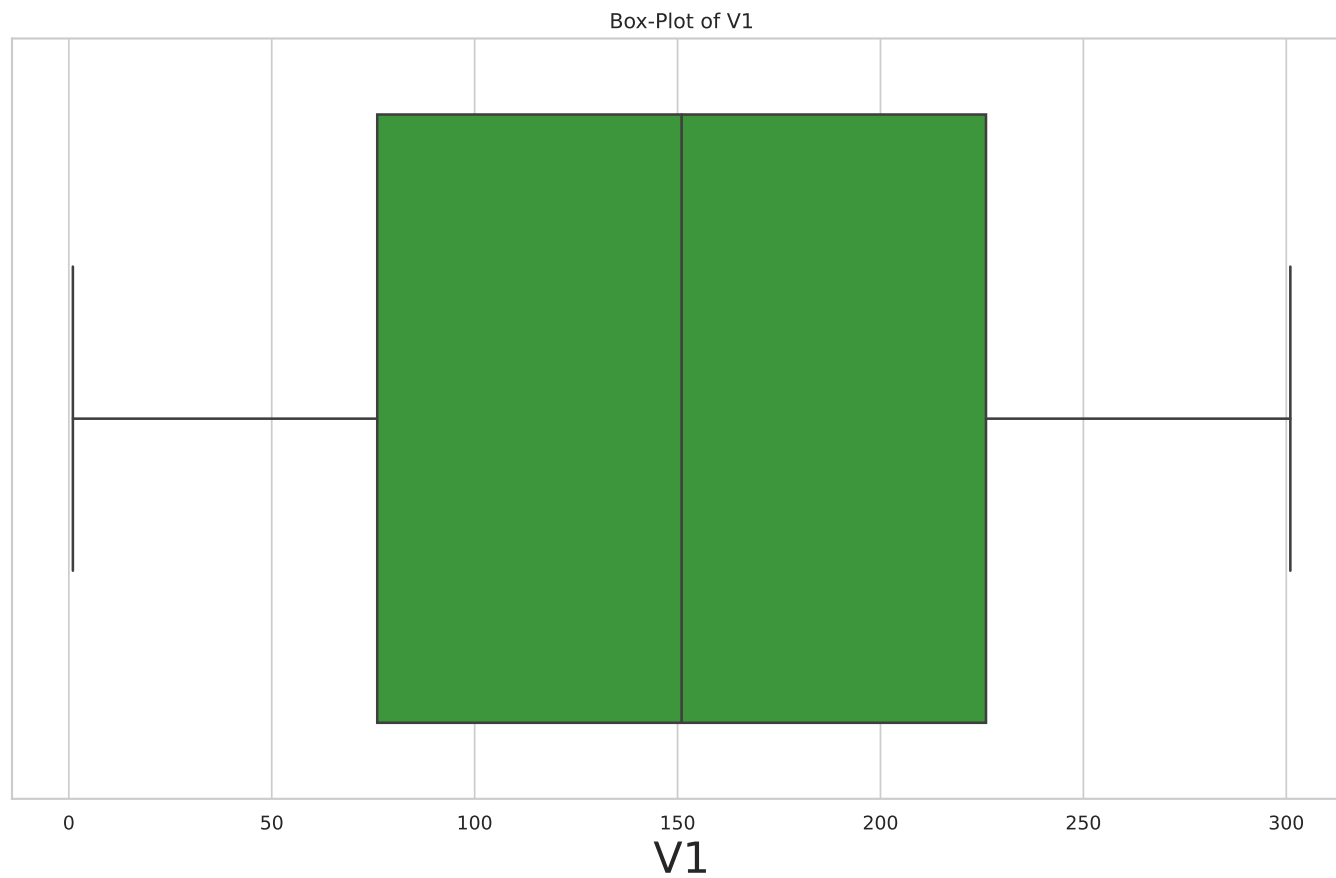


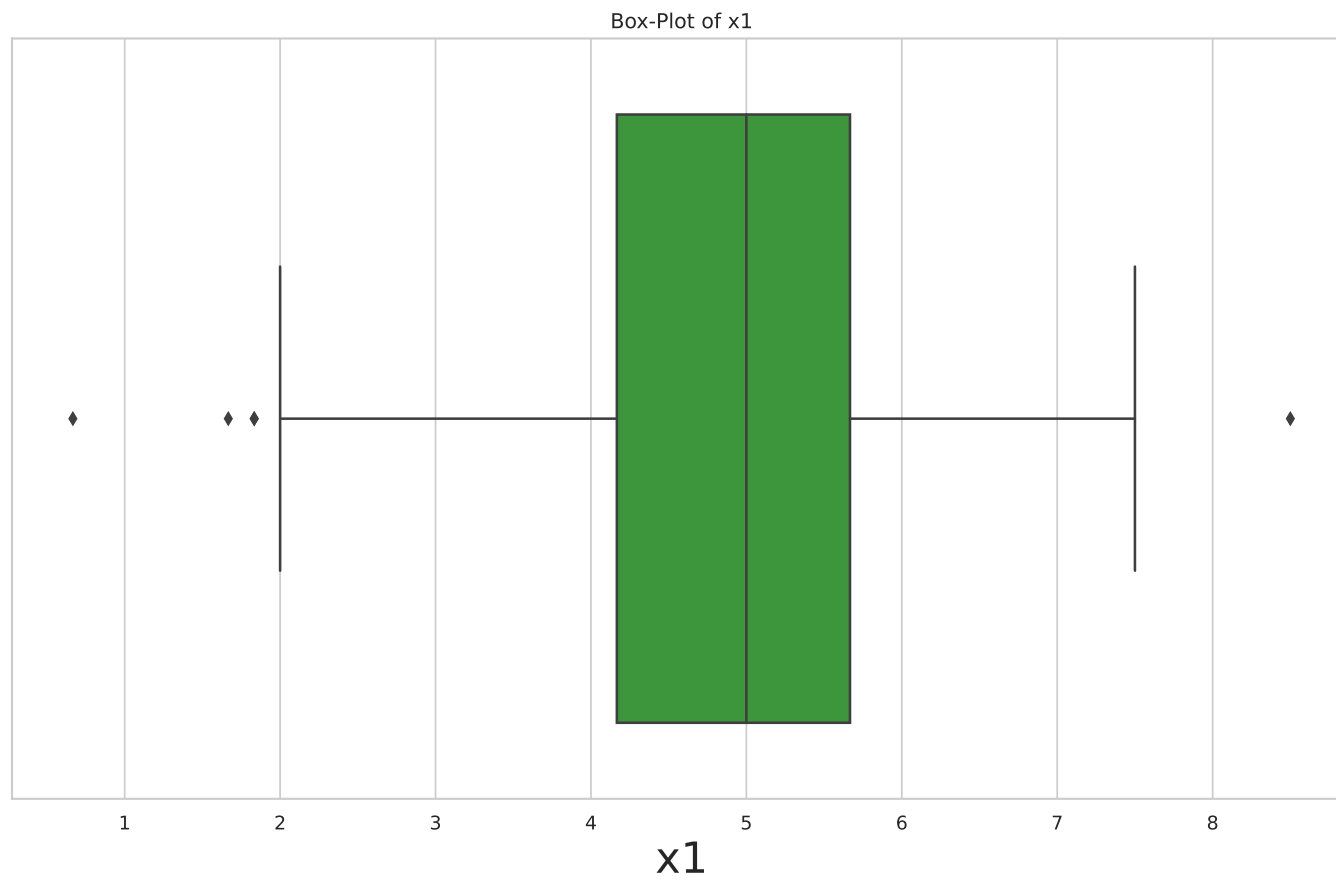
## Box-Plots

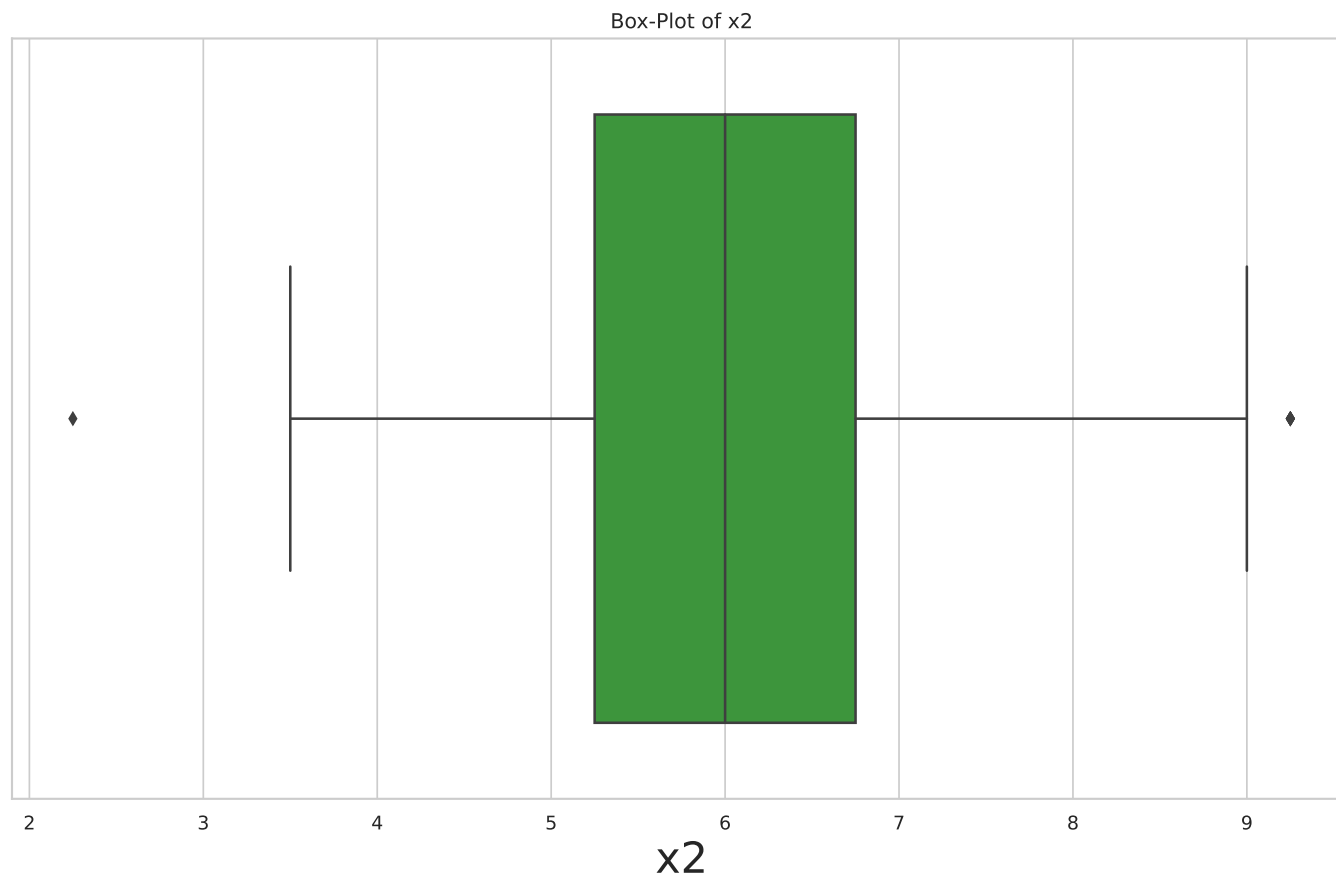
One Box-Plot per page for each variable. Variables are sorted alphabetically.

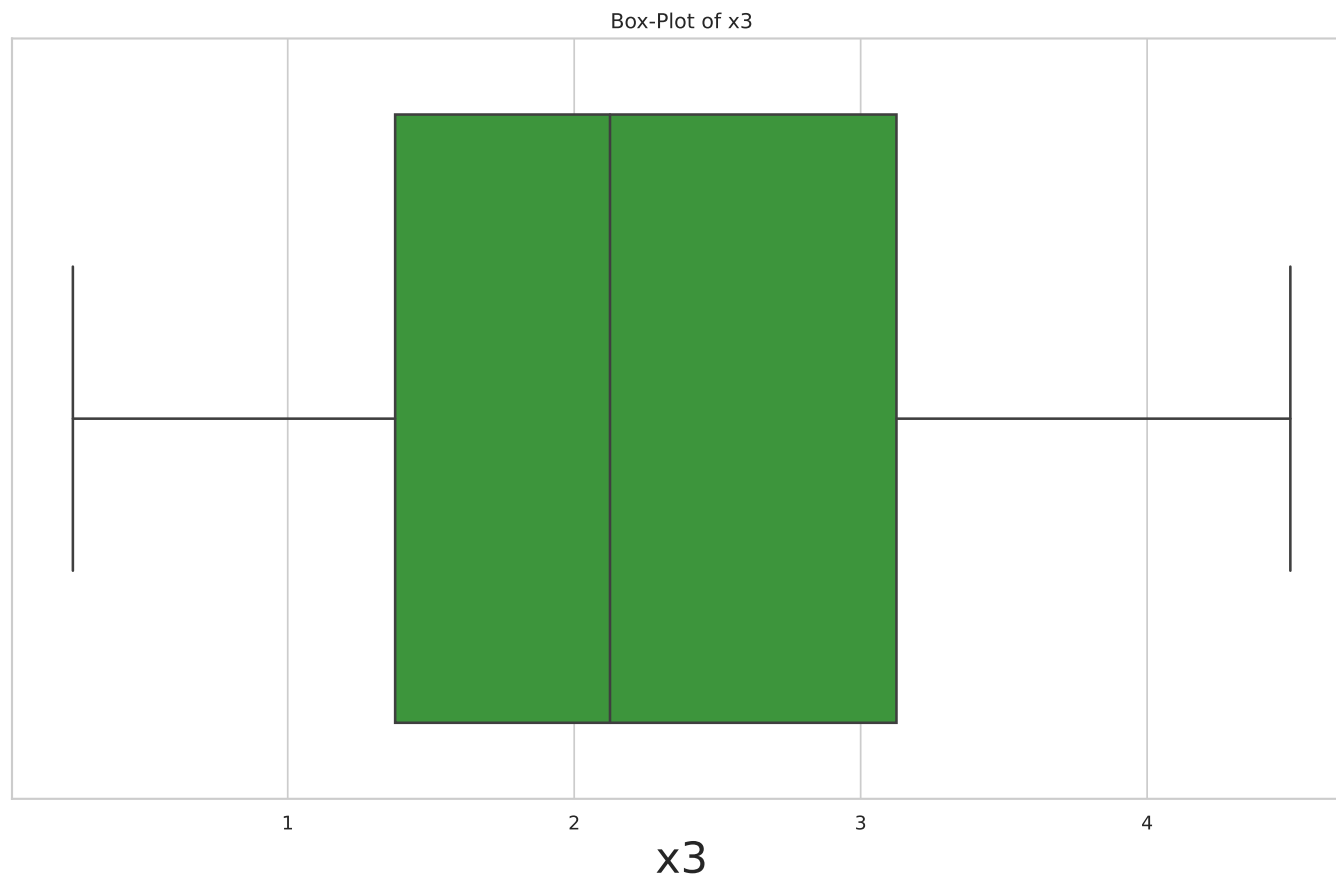
□

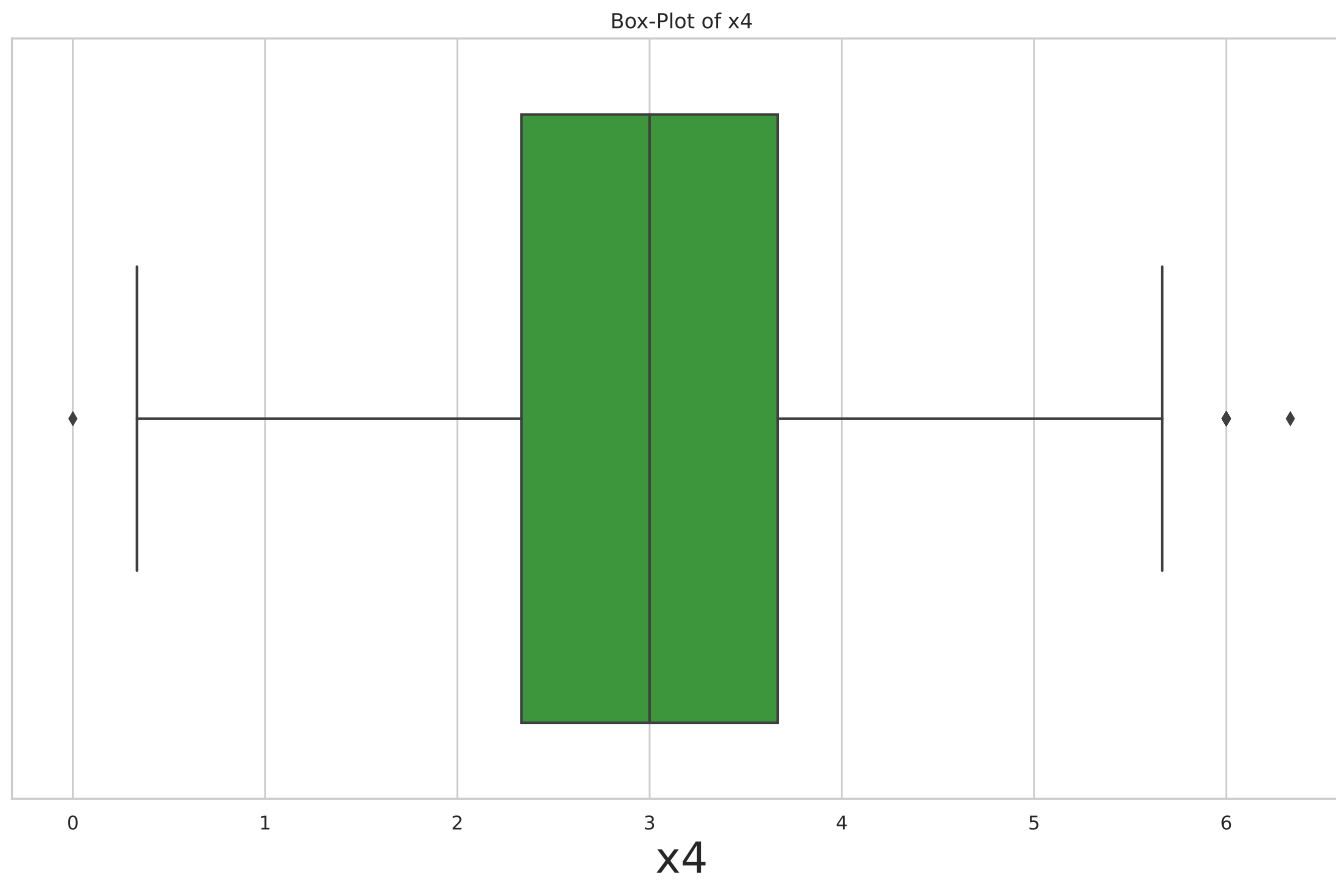


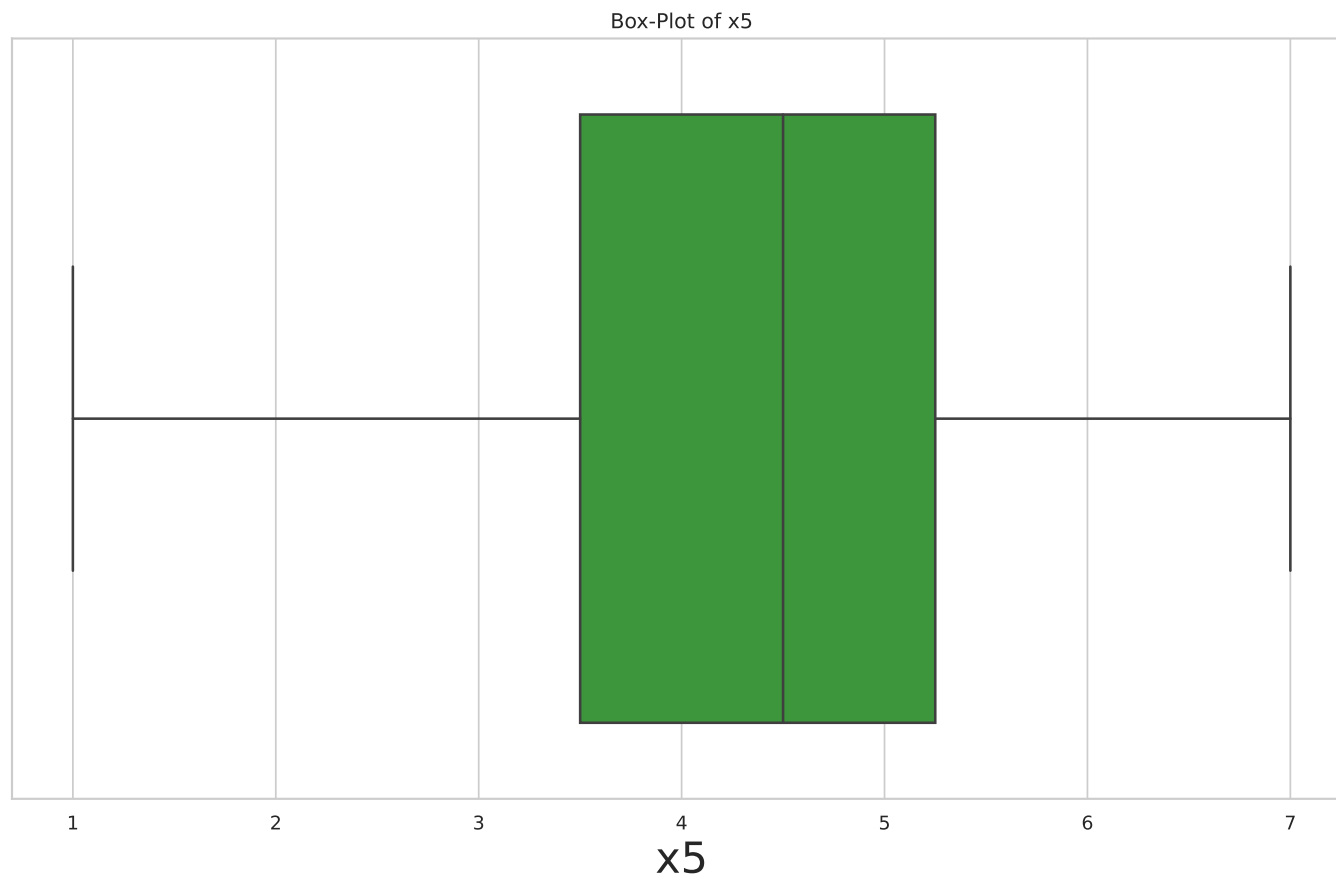


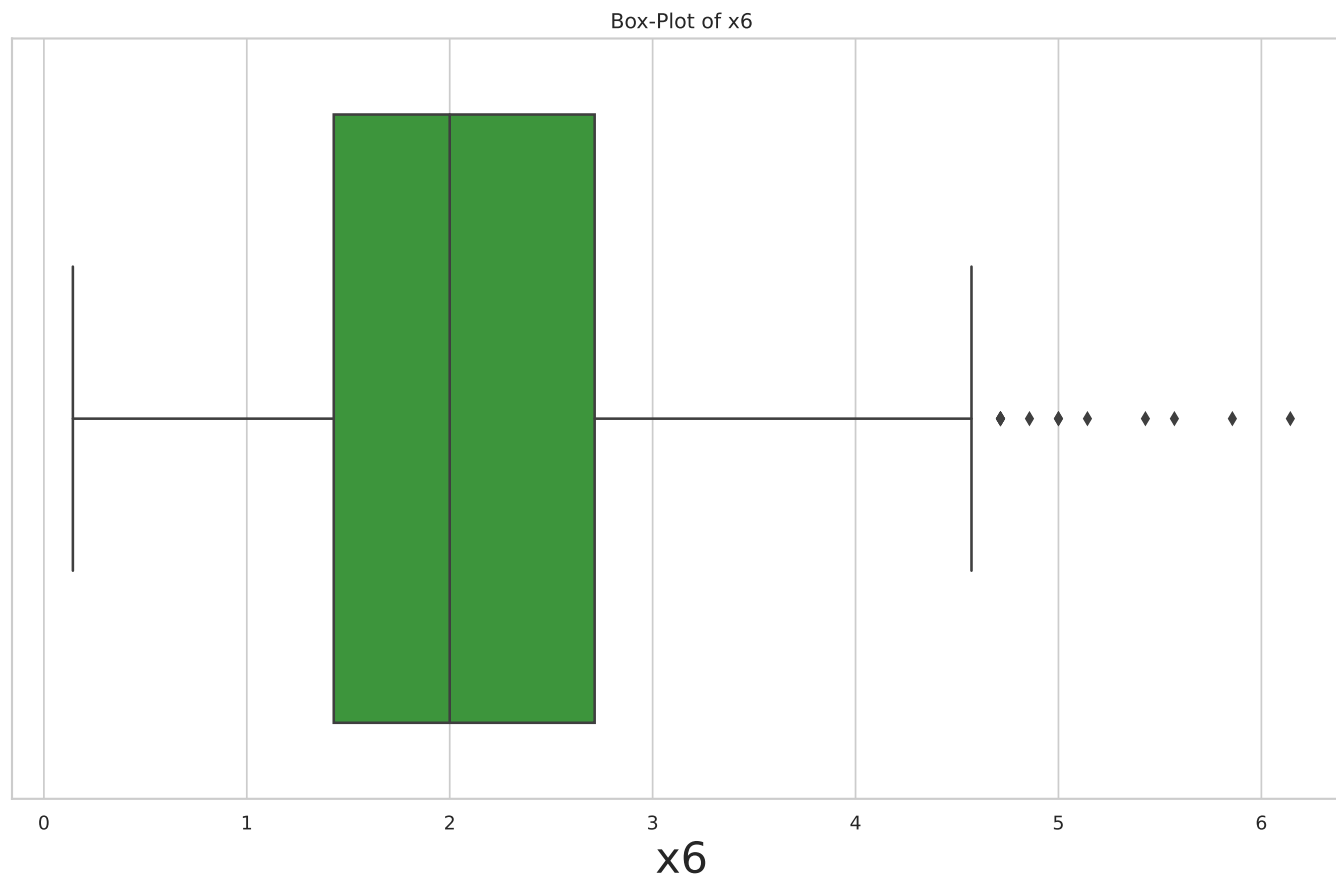




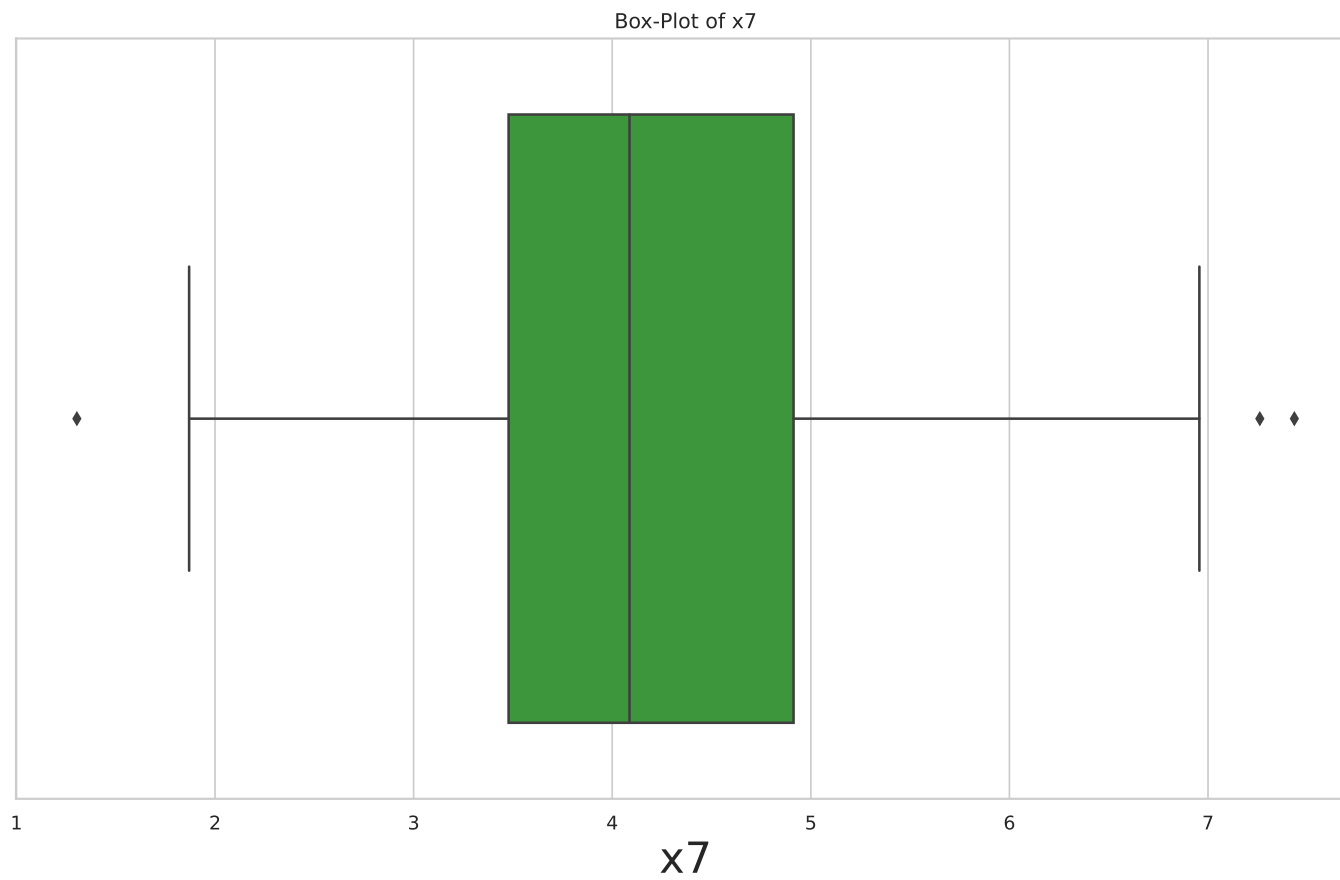


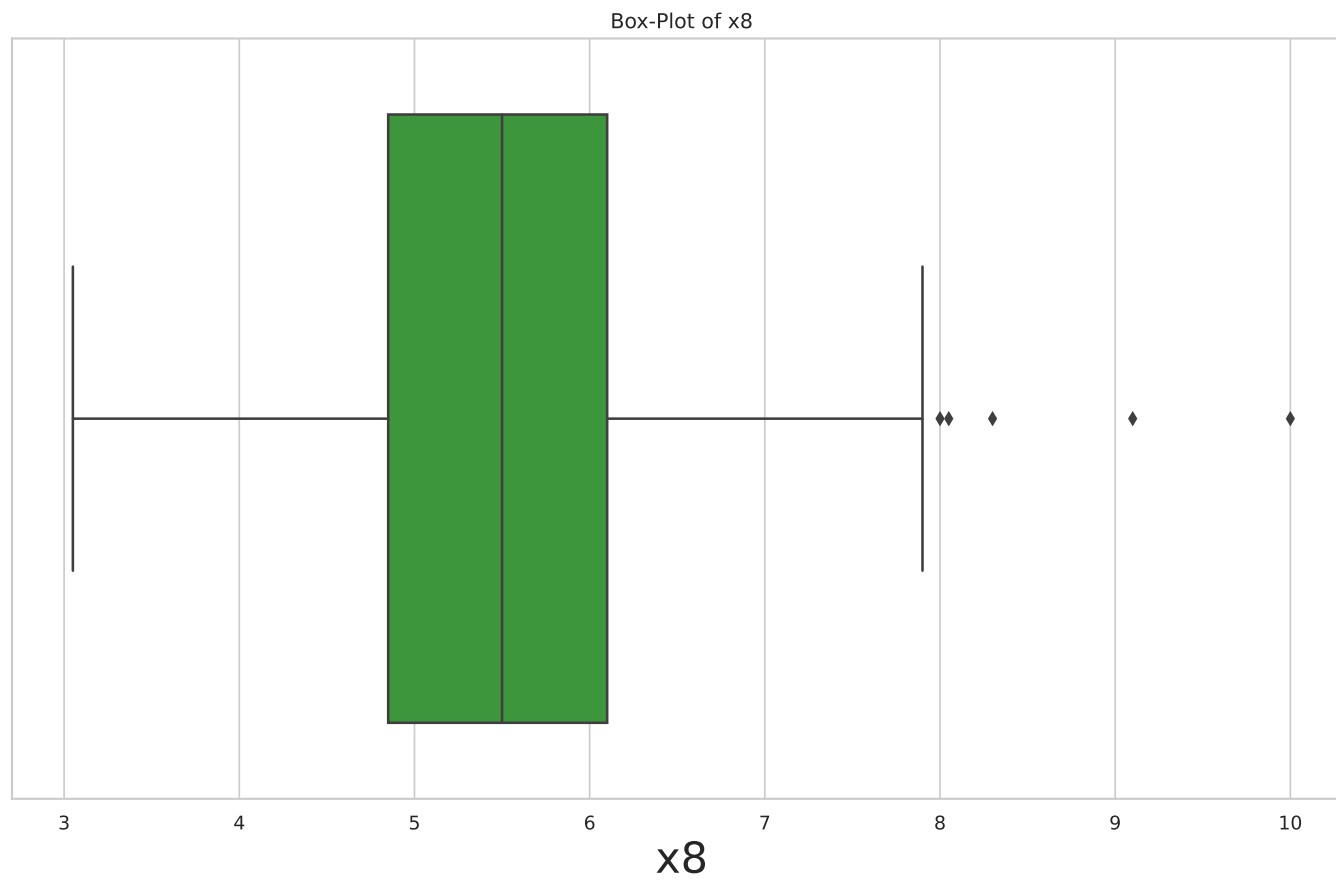


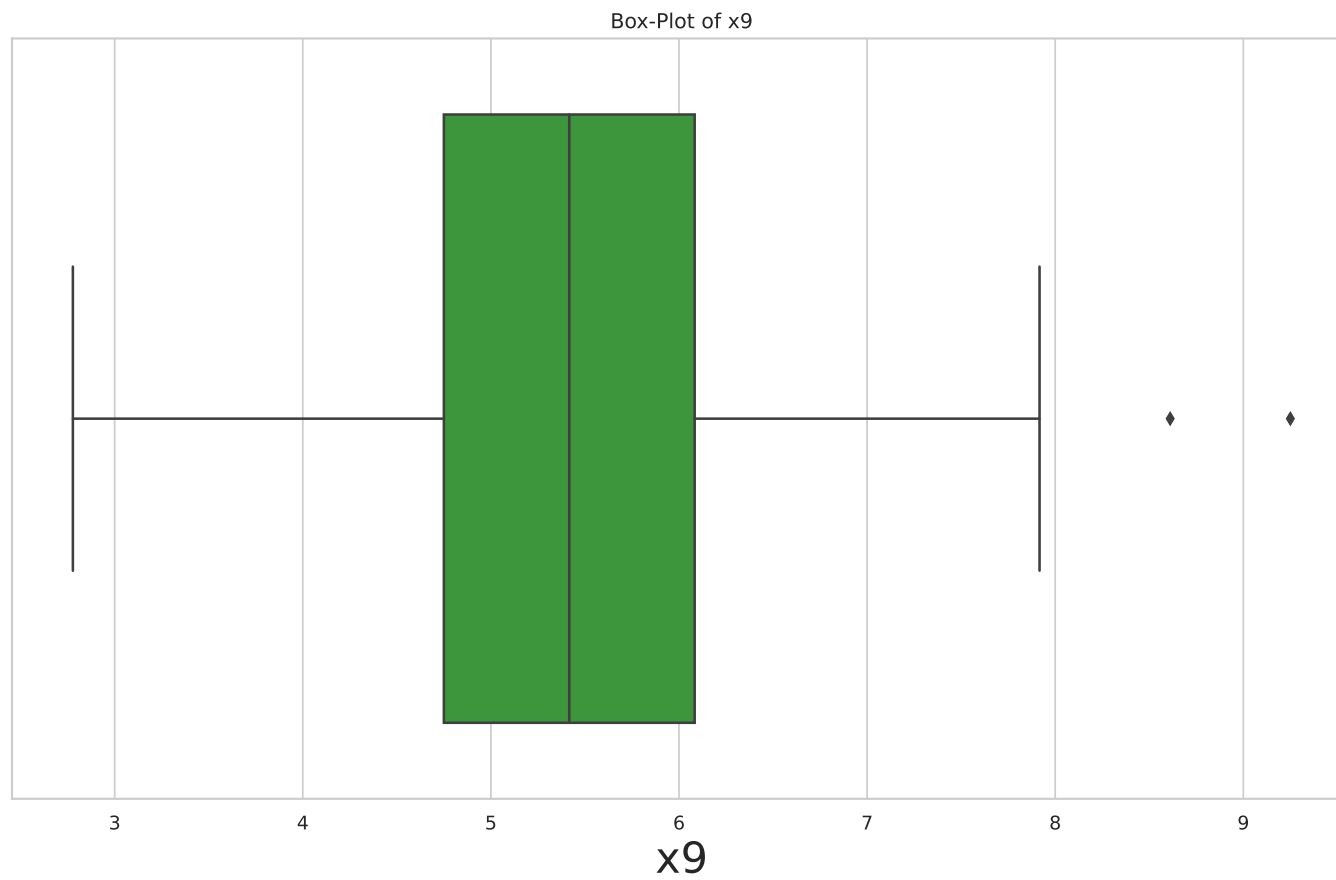






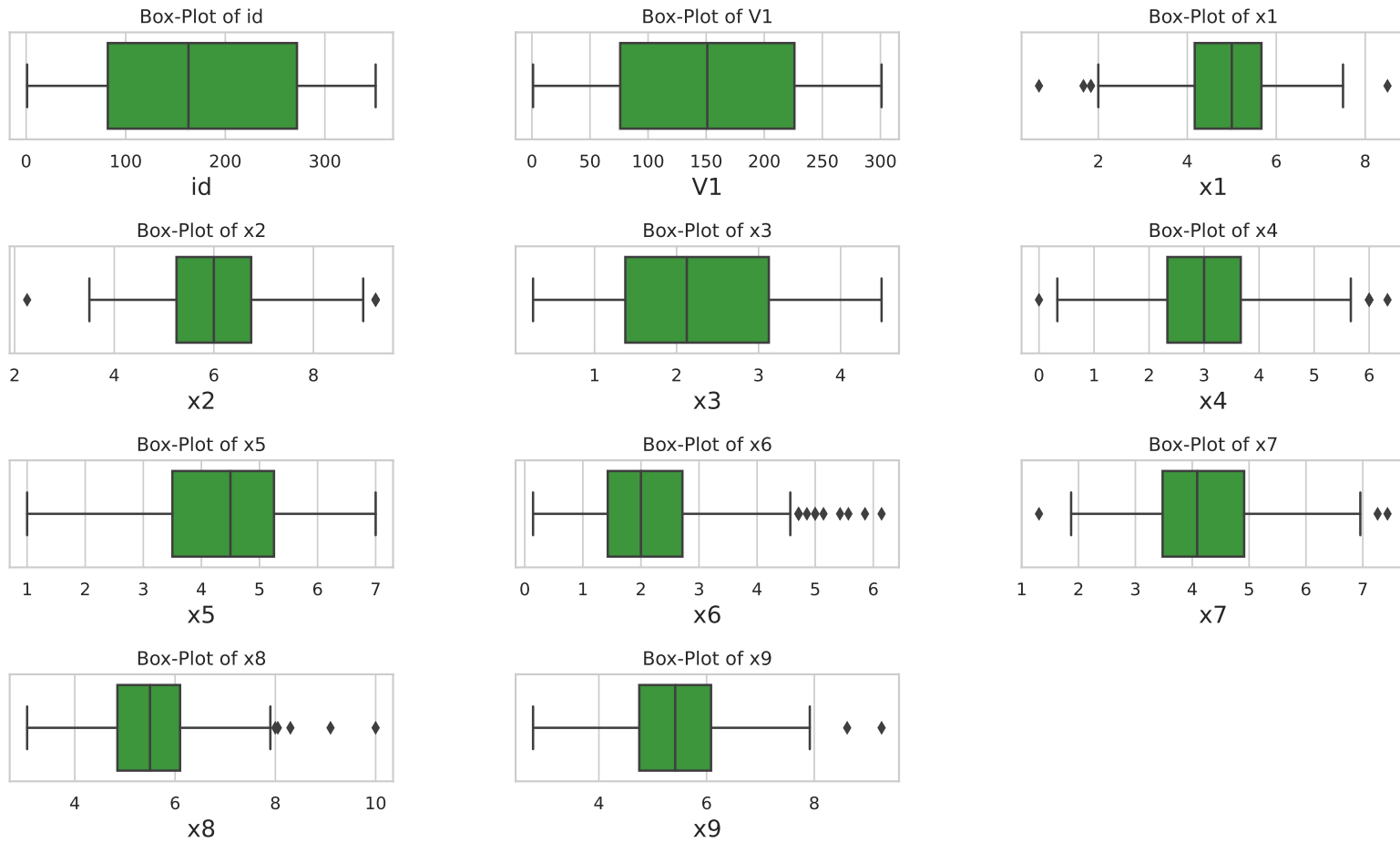






## Box-Plots Summary

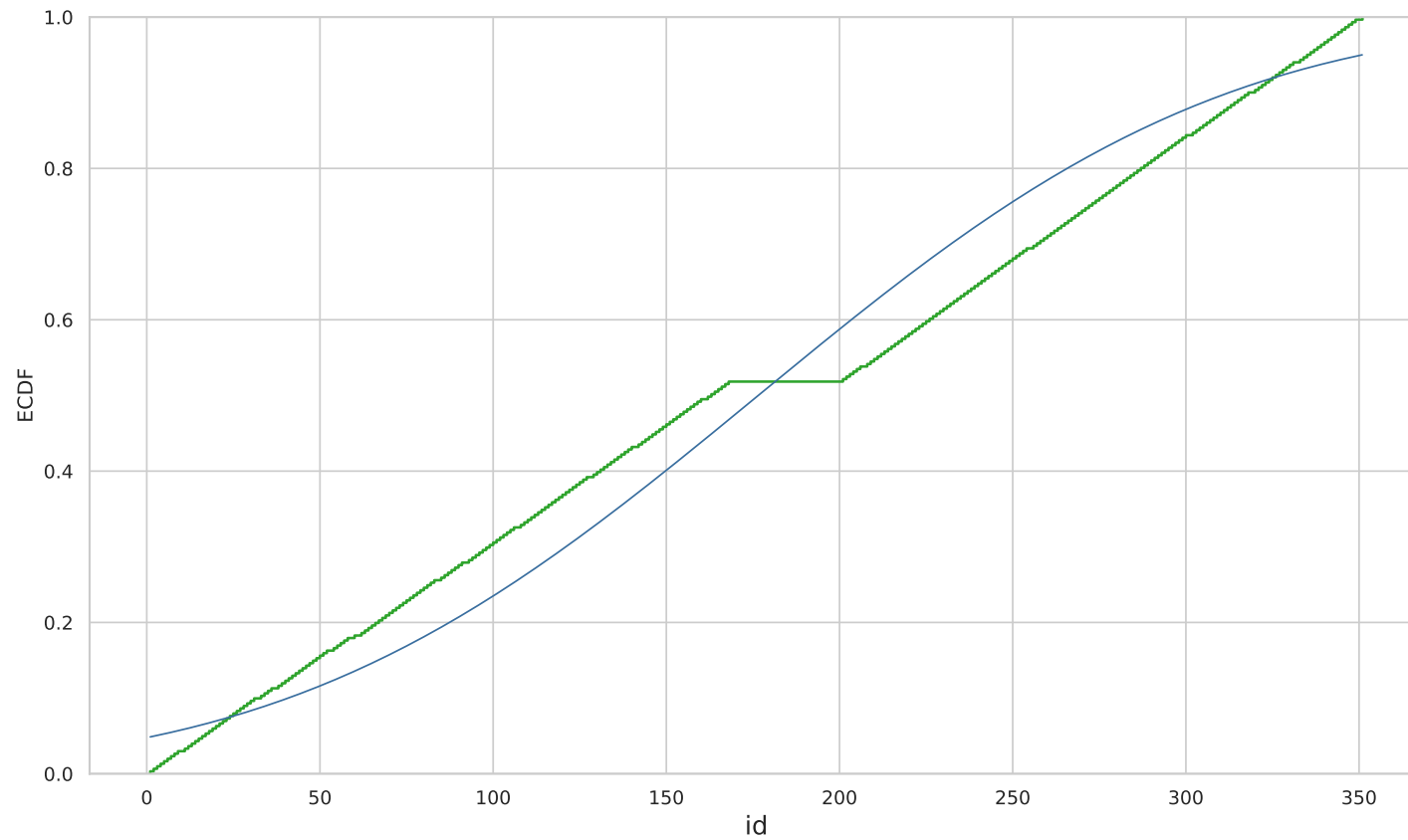
Multiple Box-Plots of variables in one figure. Variables are sorted alphabetically.

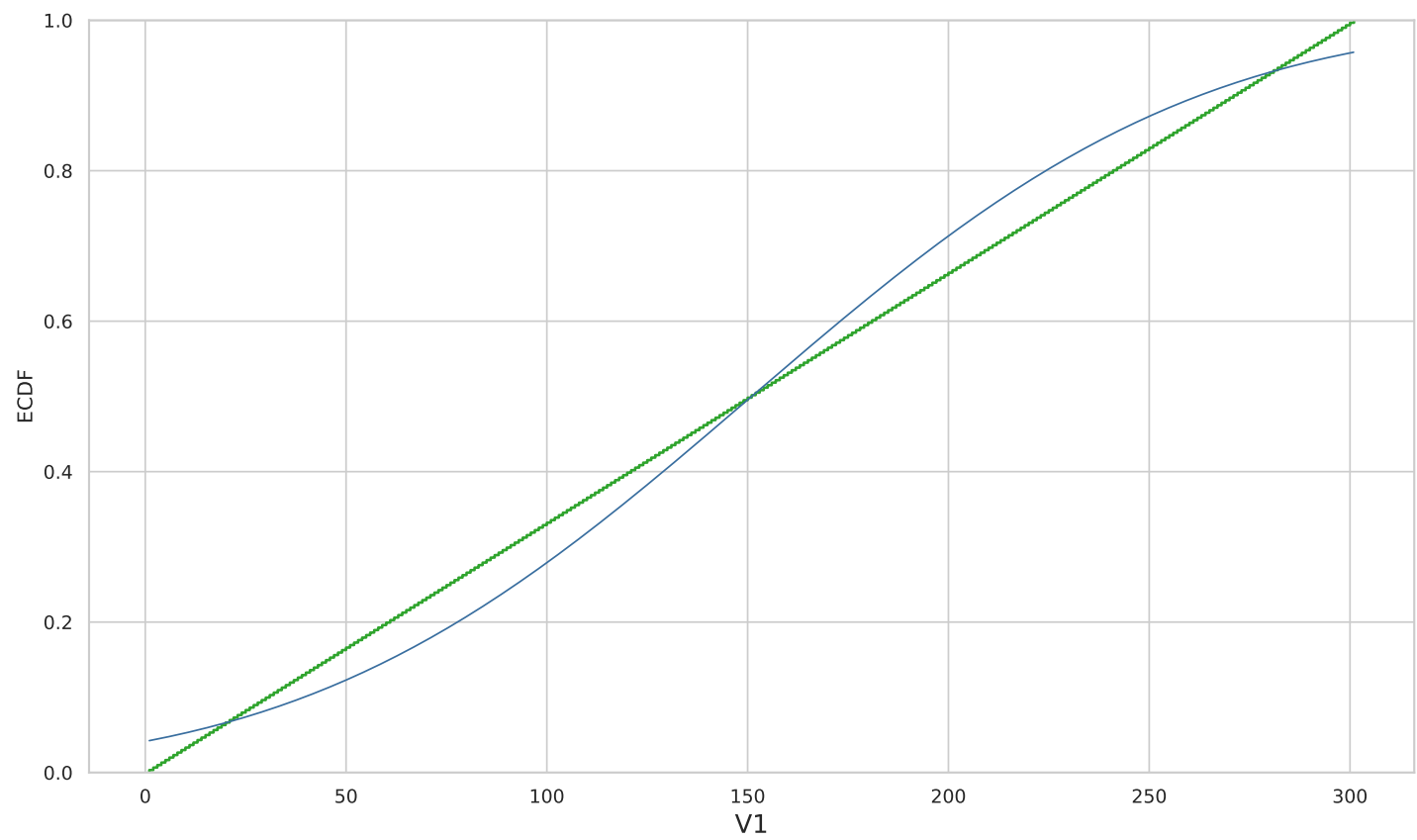


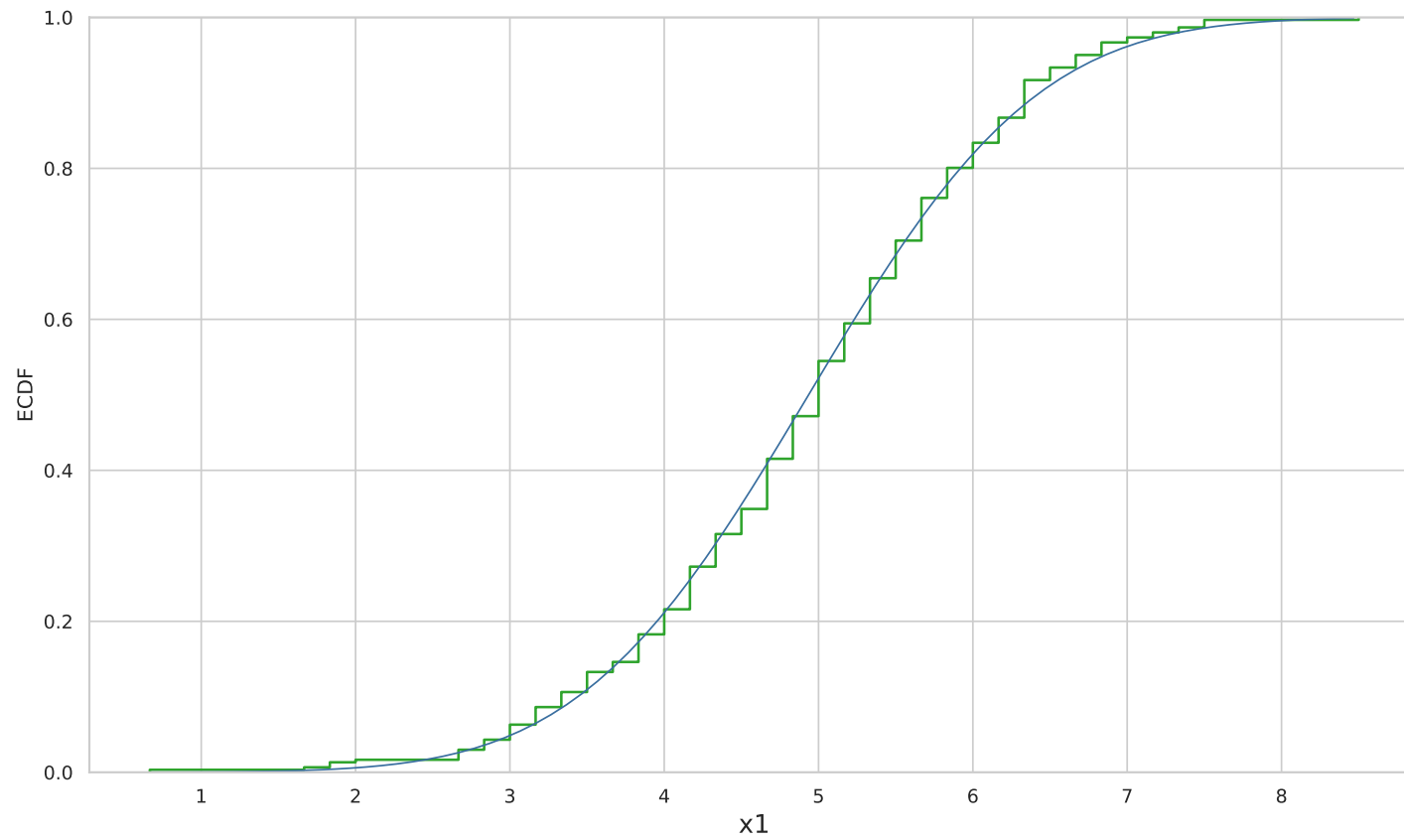
## ECDF Plots

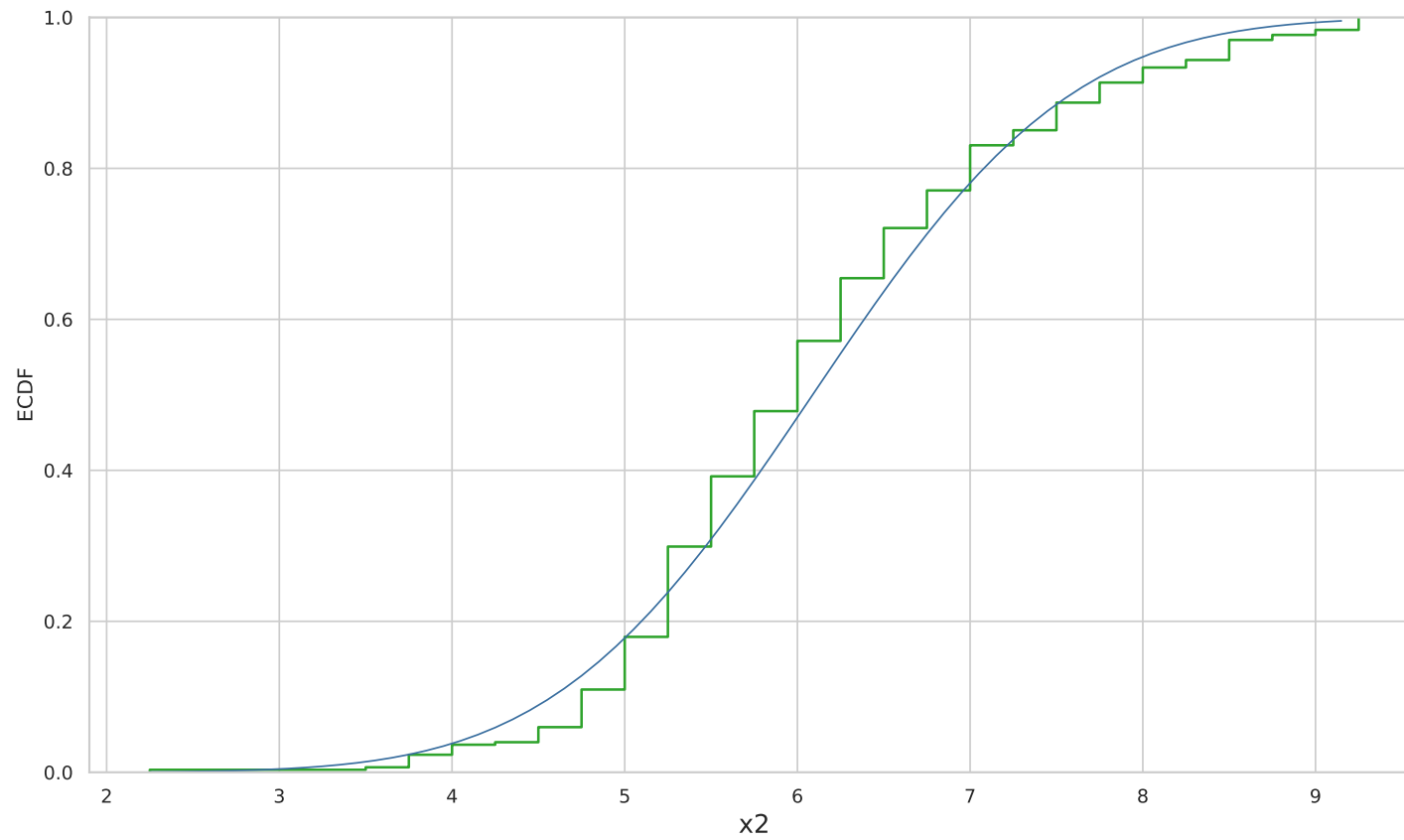
One ECDF (Empirical Cumulative Distribution Function) Plot per page for each variable. Variables are sorted alphabetically. The blue line represents the CDF of a normal distribution. If the variable is normally distributed, the blue line approximates well the ECDF.

□

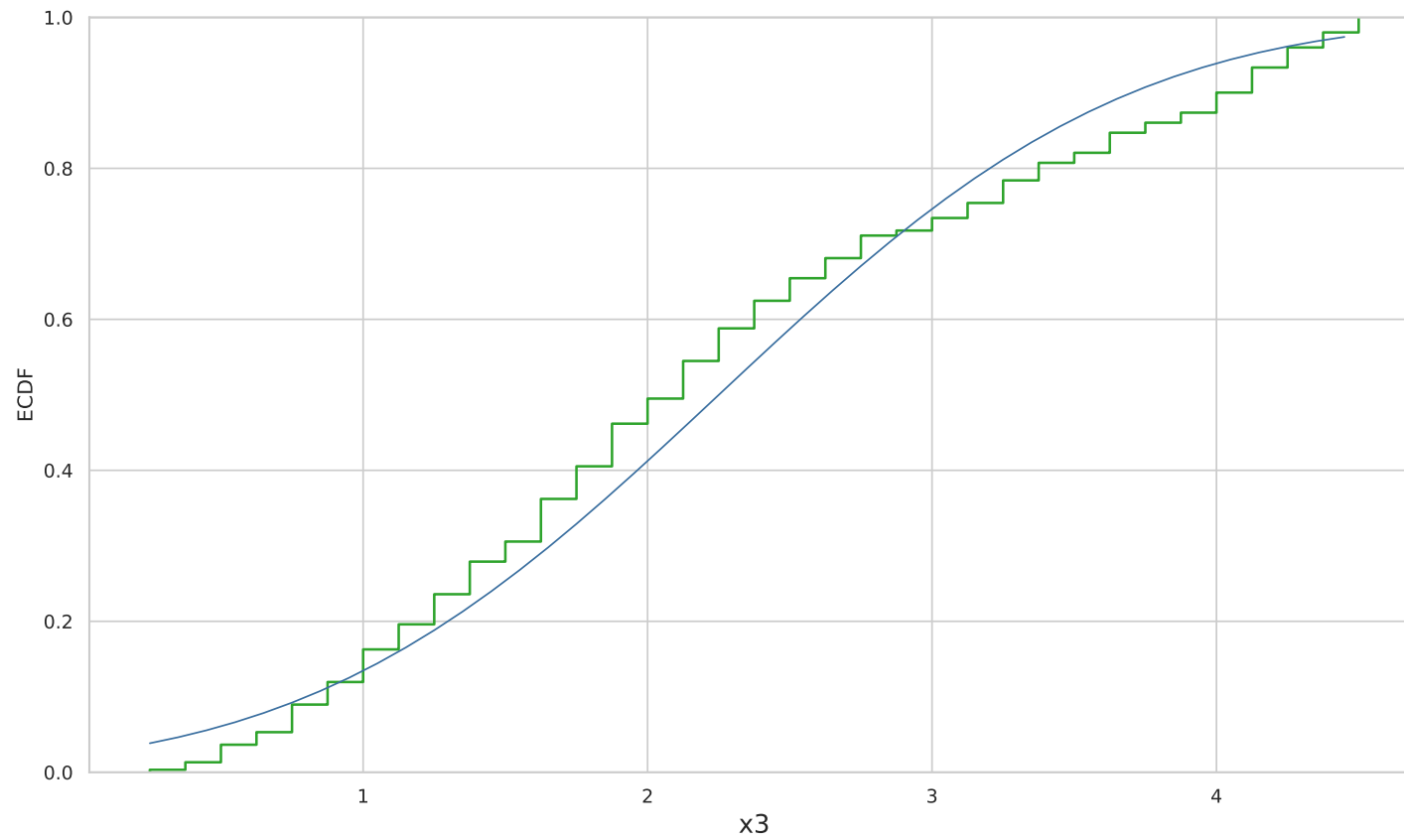


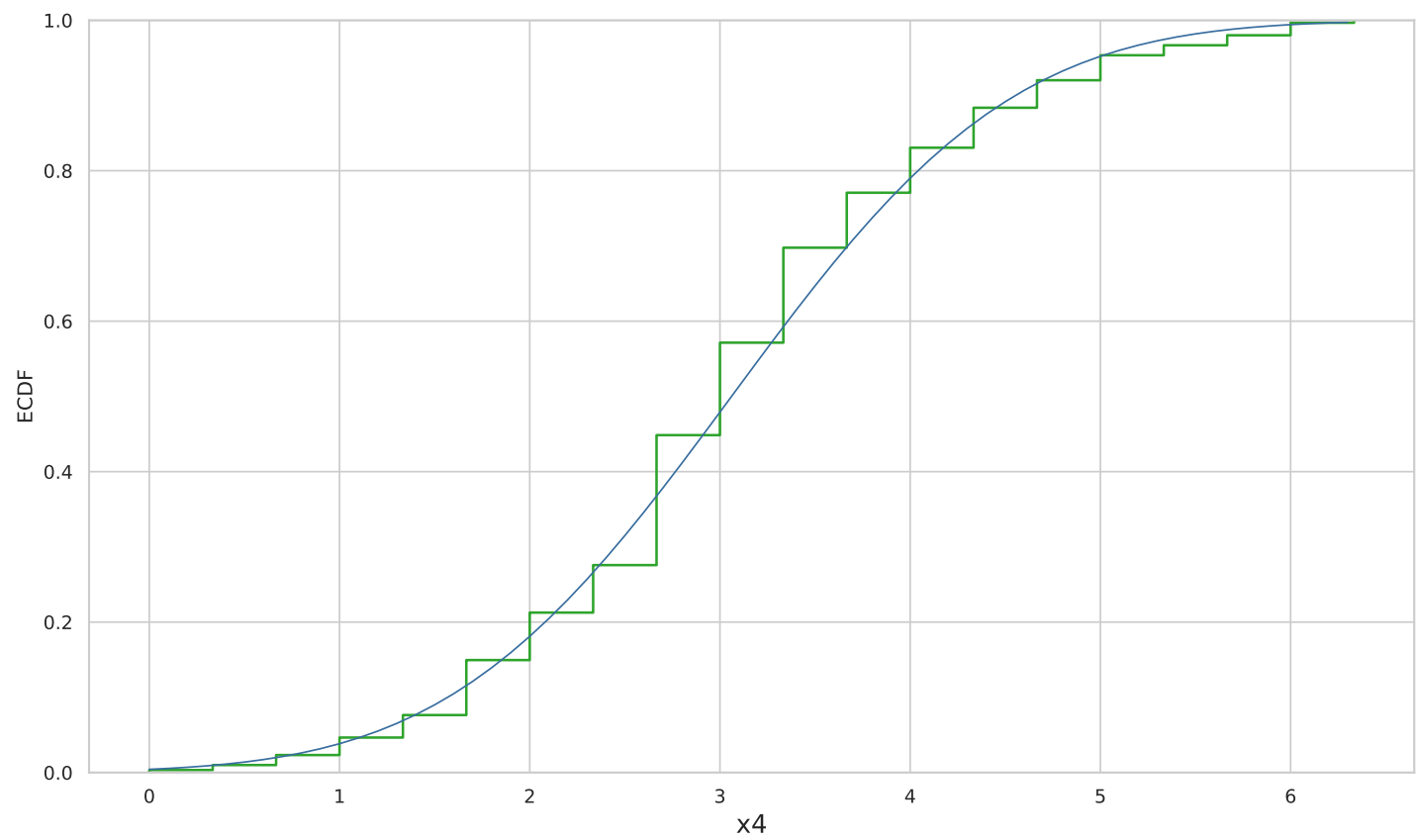


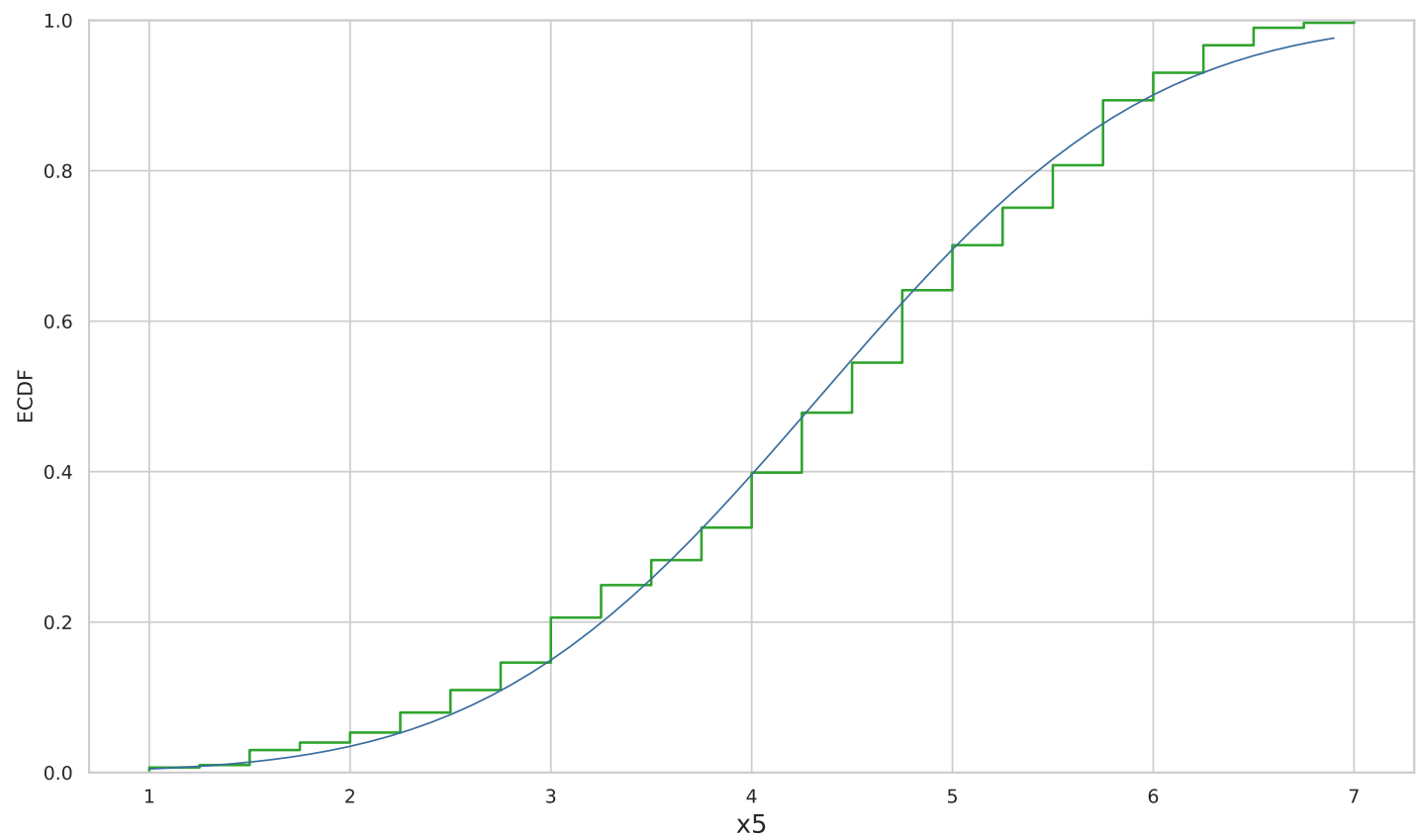


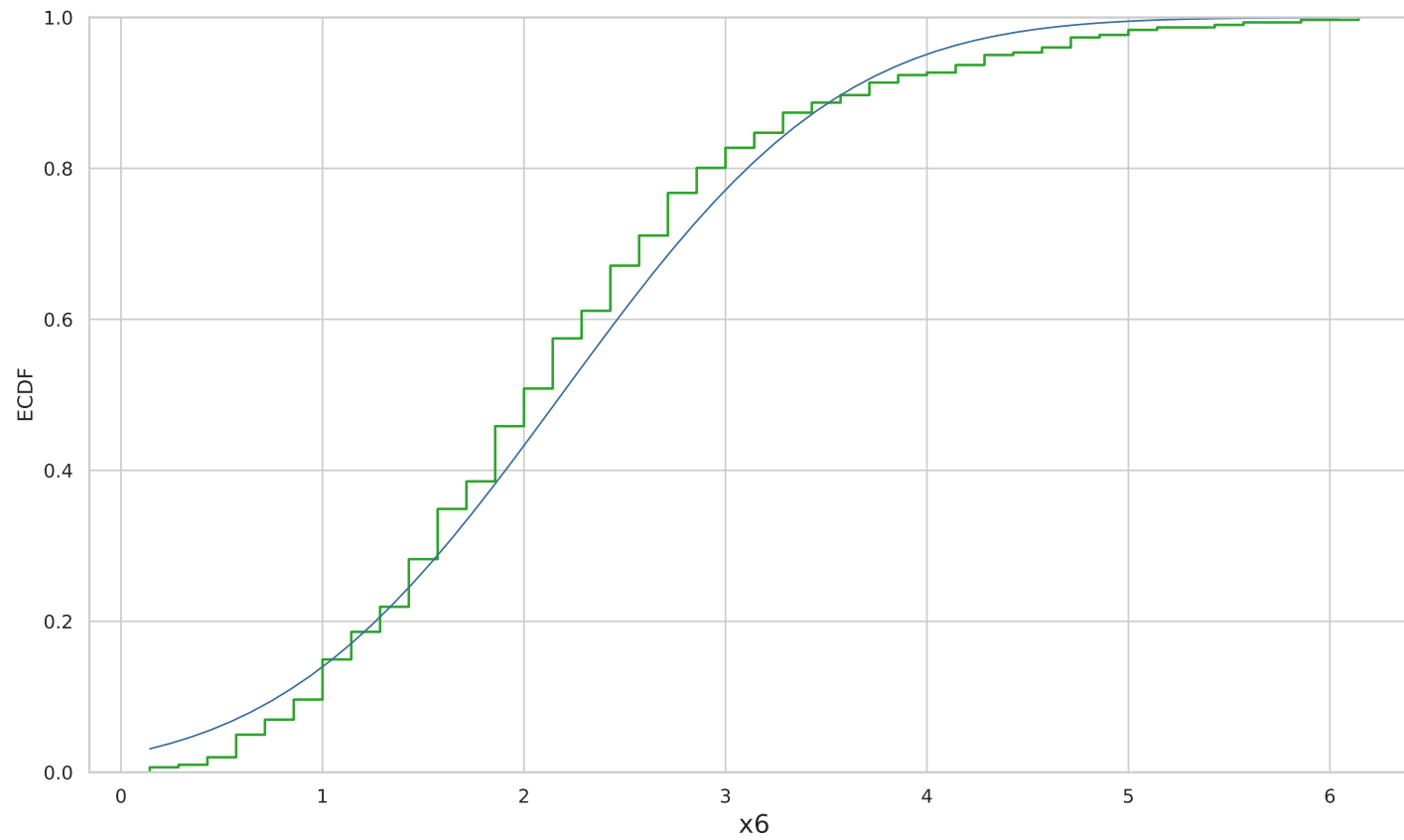


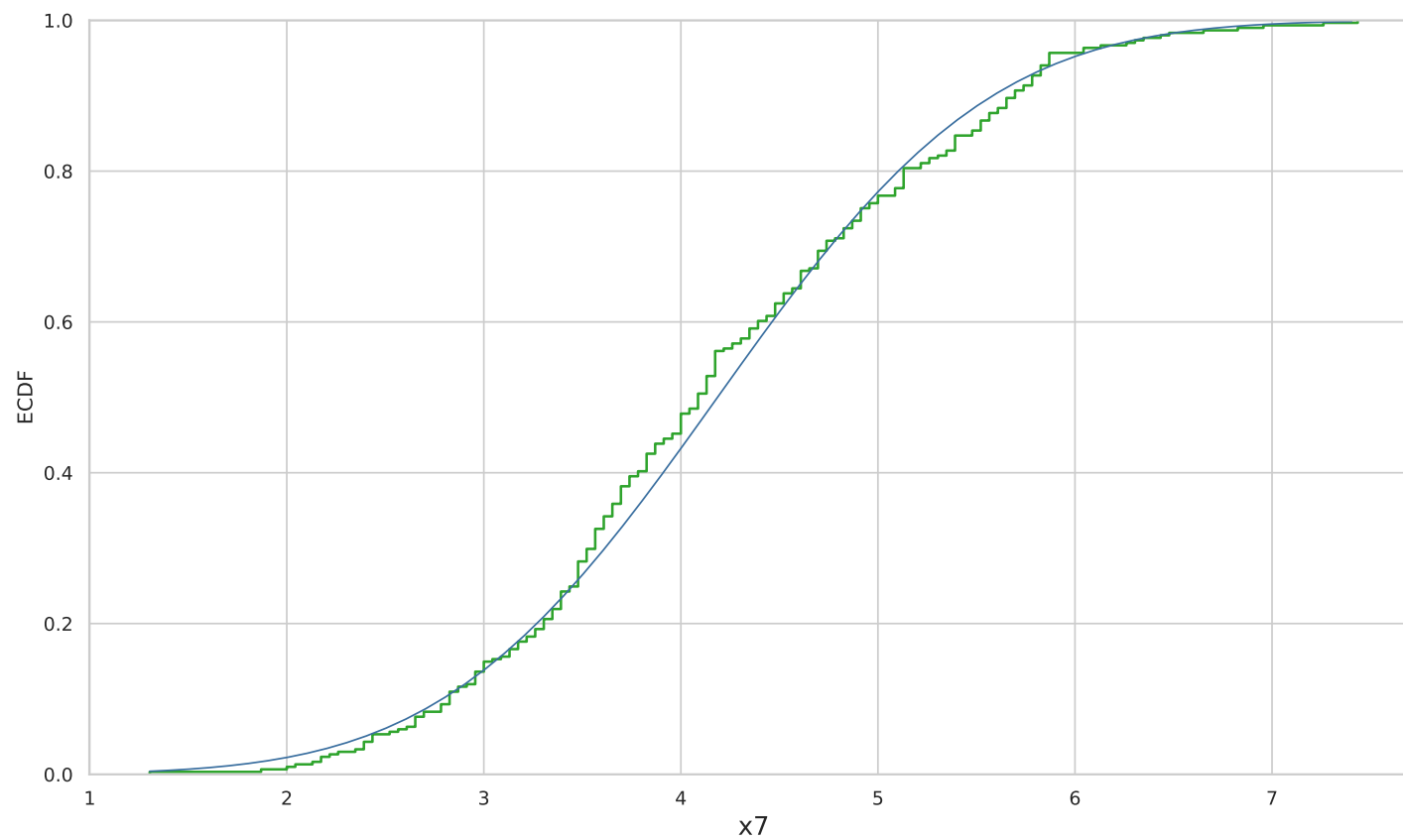


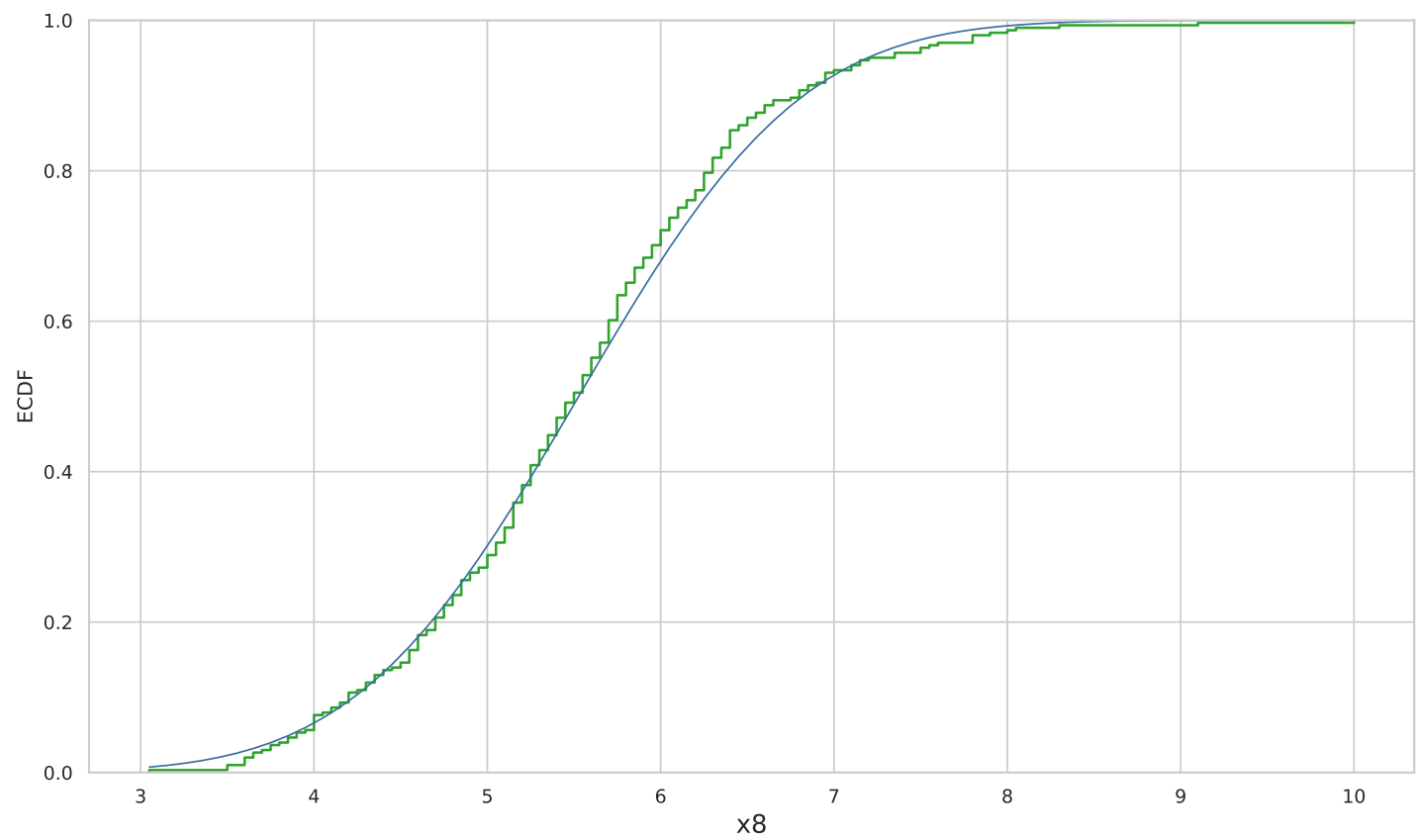


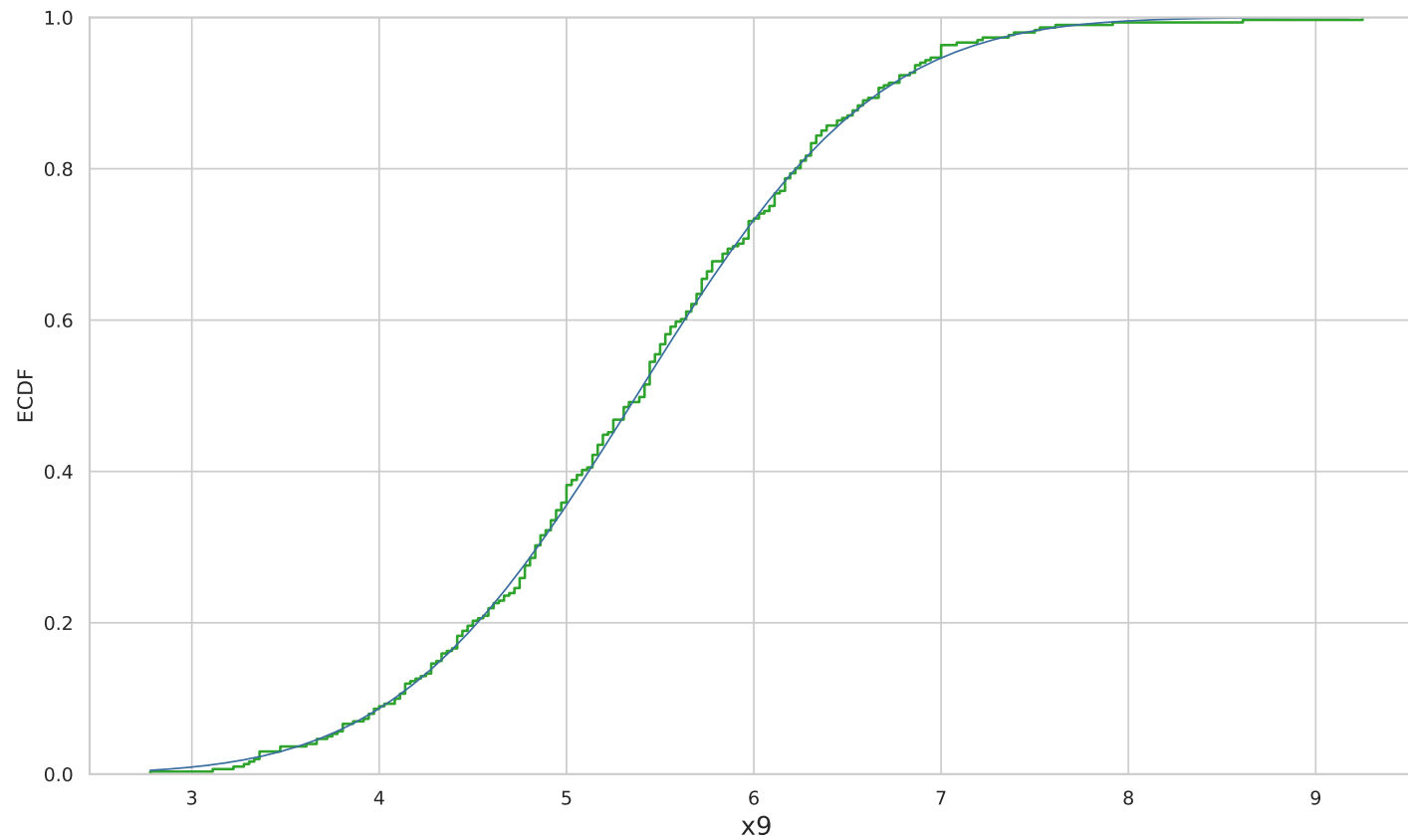






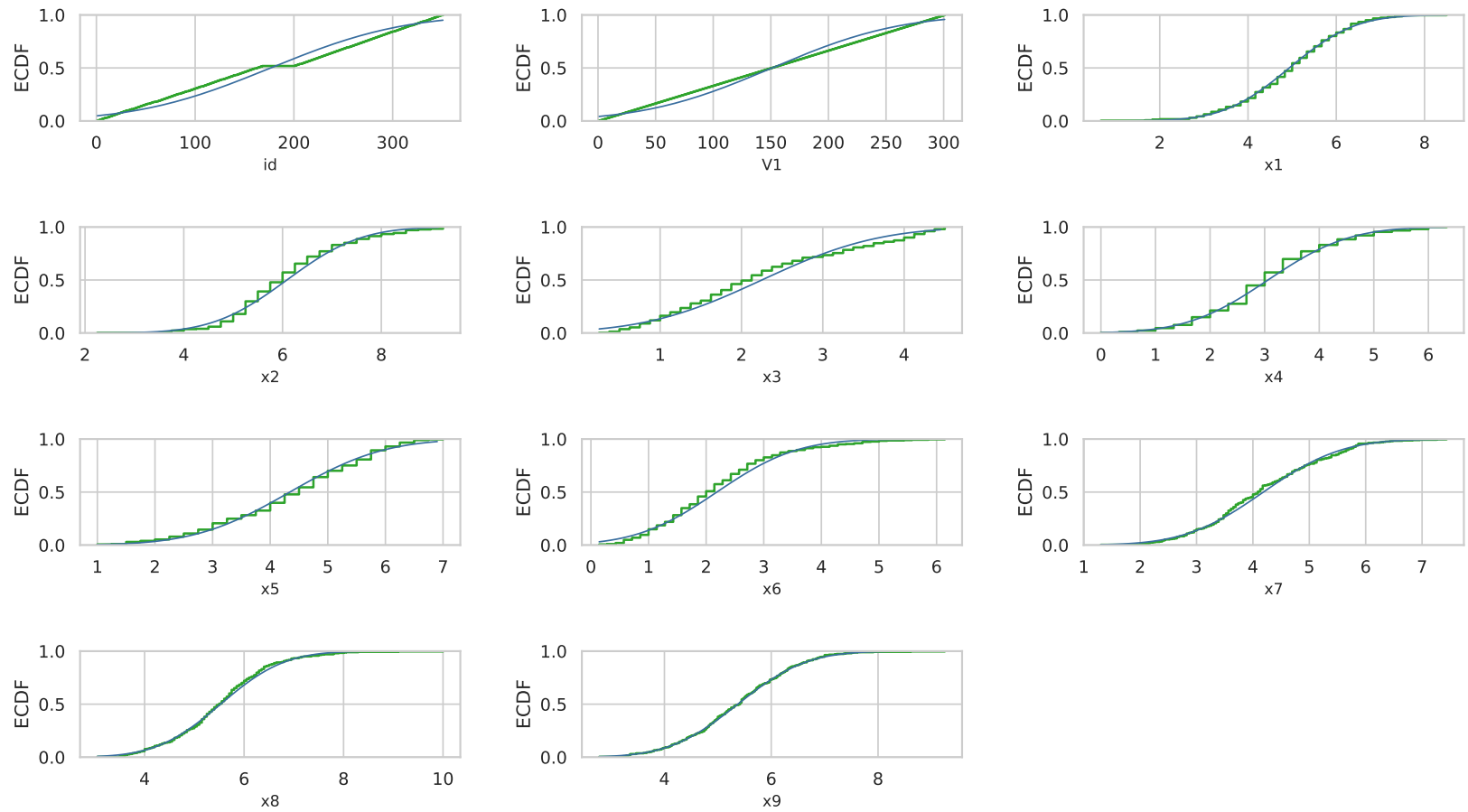






## ECDF Plots Summary

Multiple ECDF Plots of variables in one figure. Variables are sorted alphabetically.

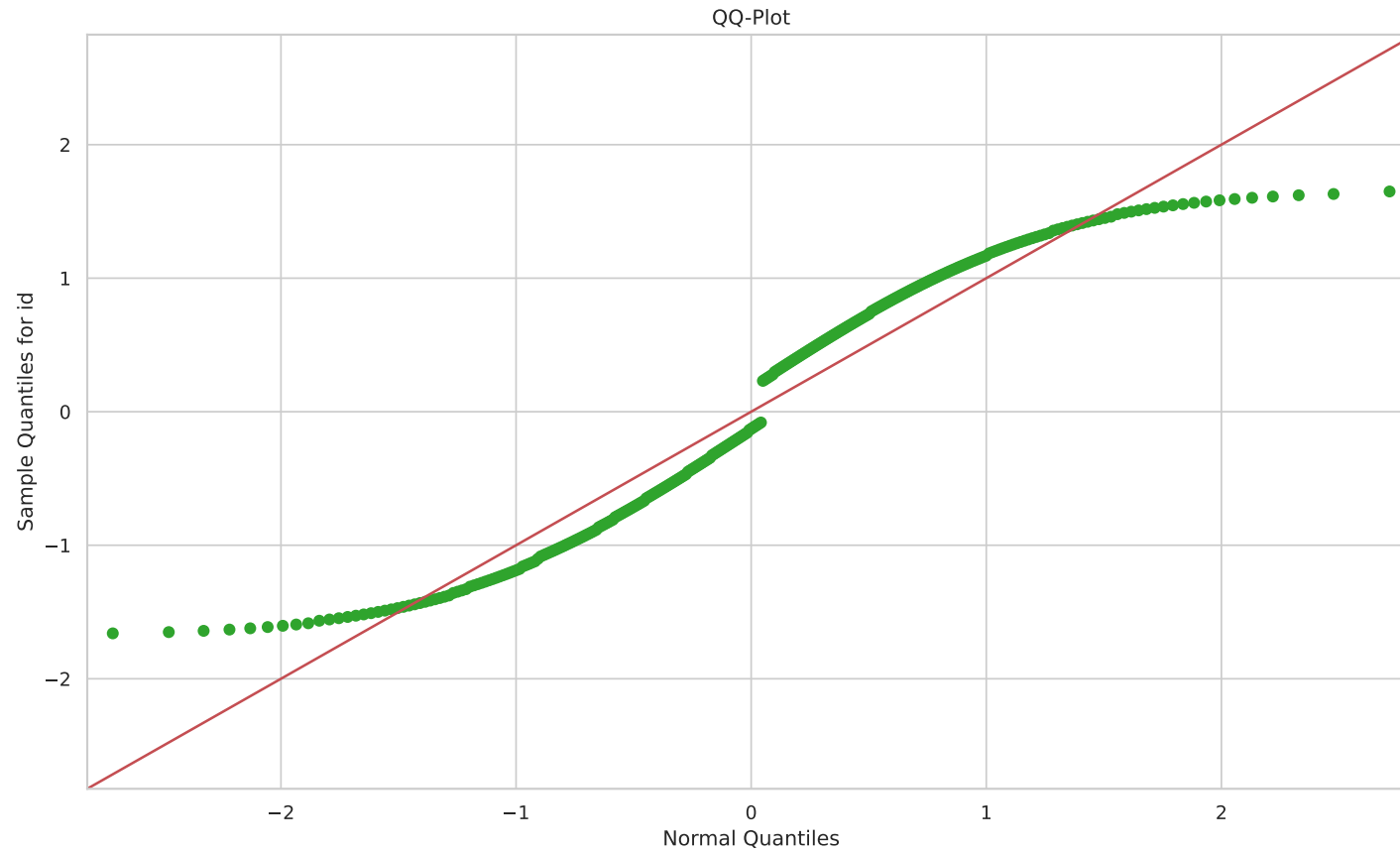


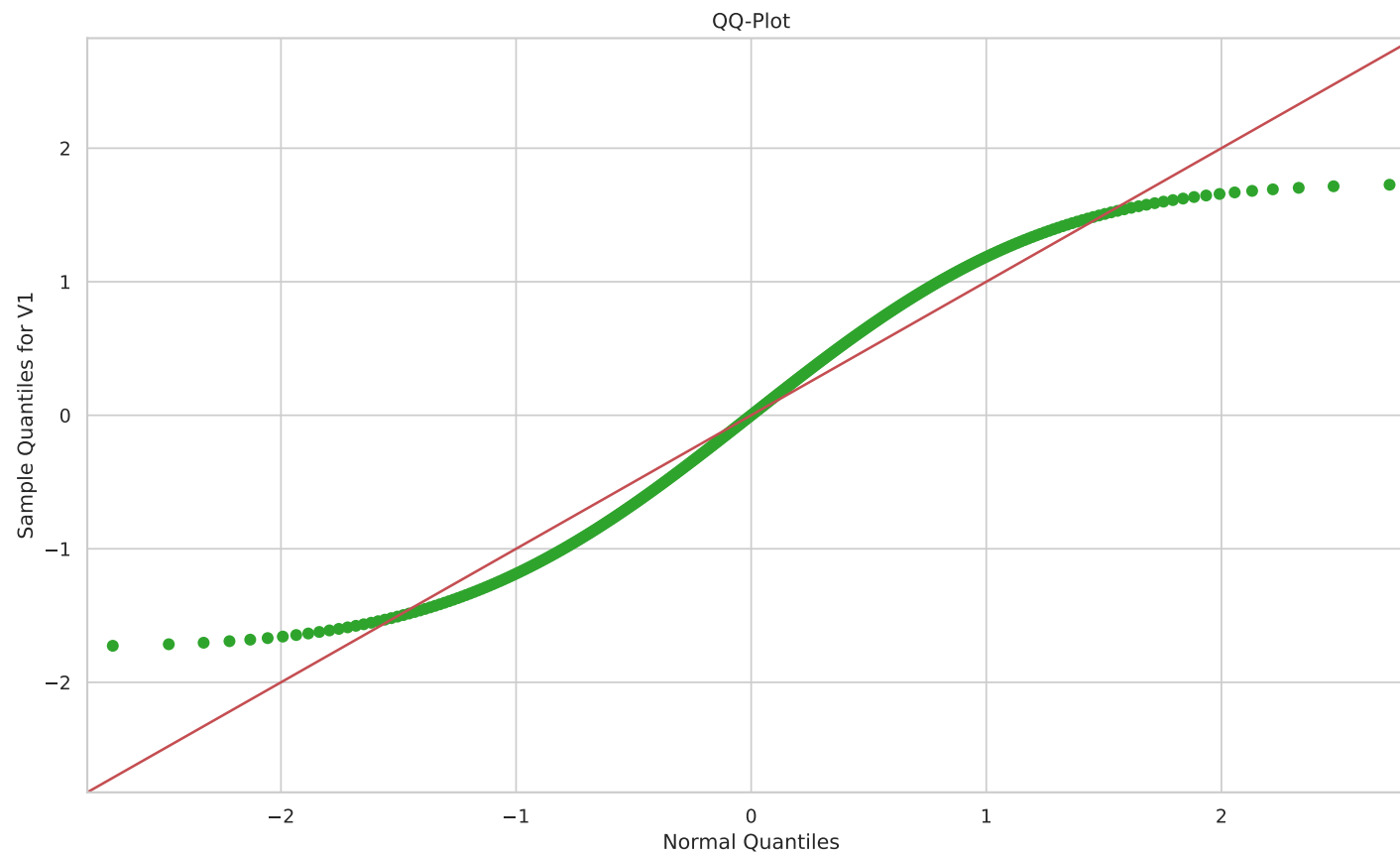


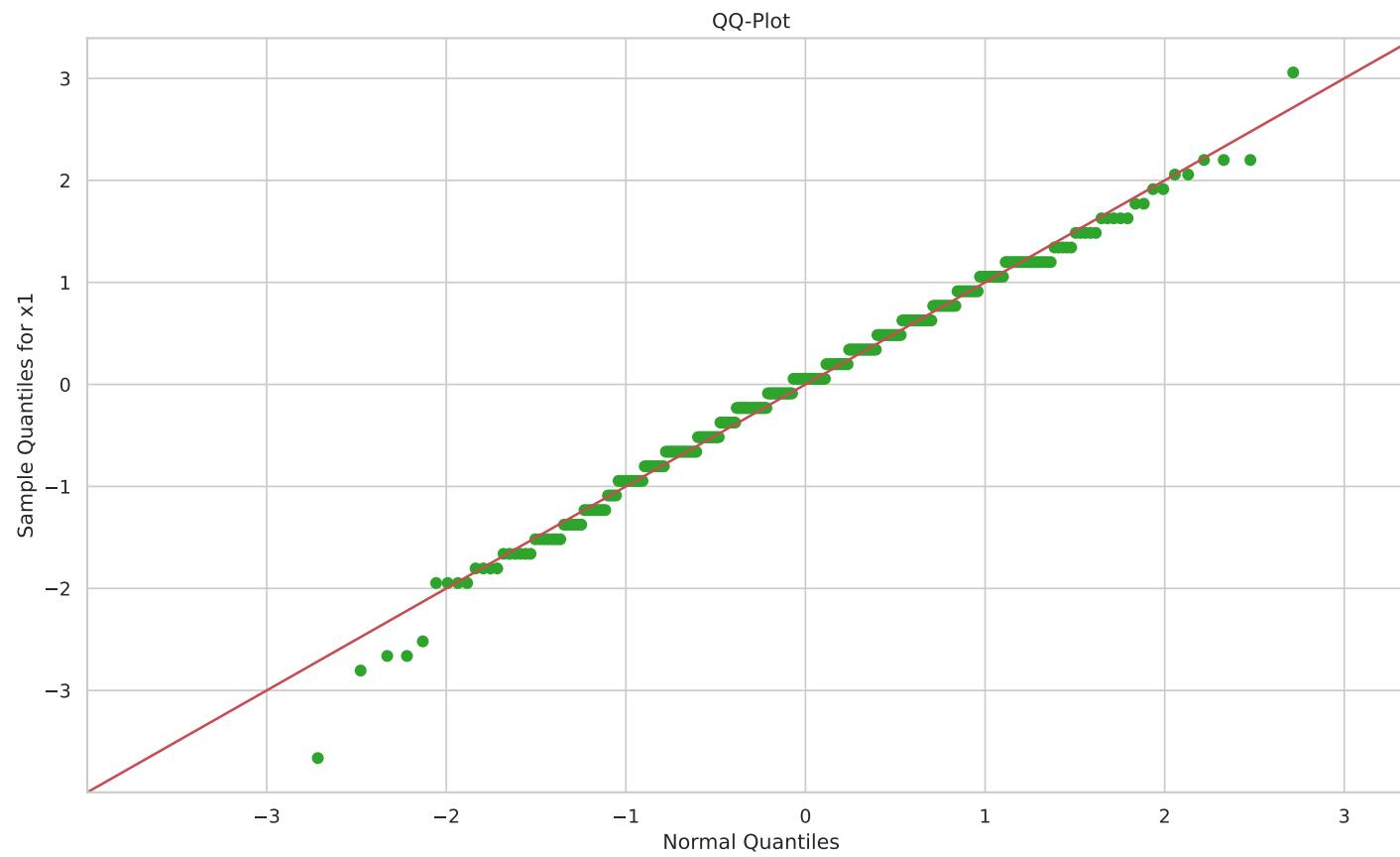
## QQ-Plots

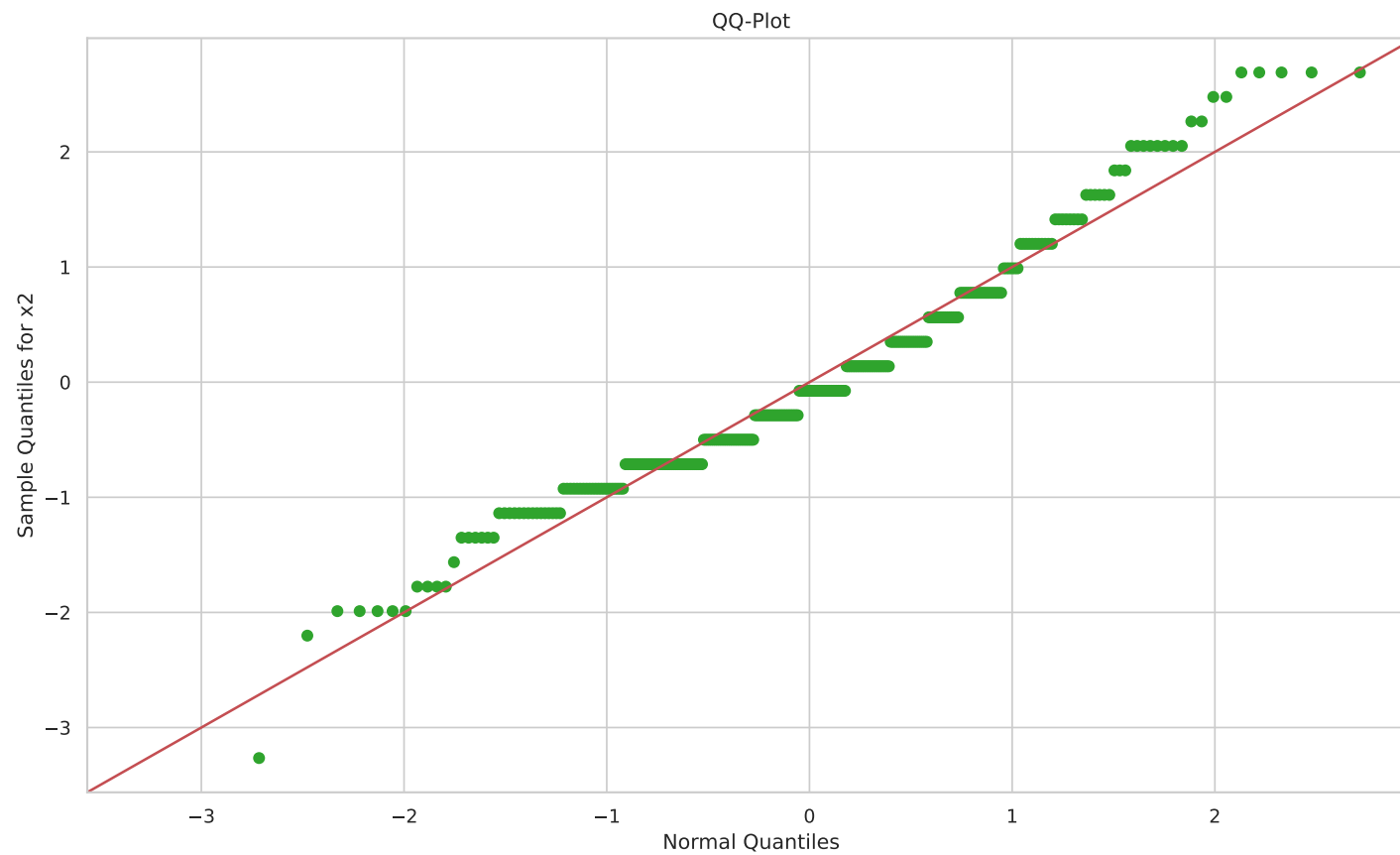
One QQ-Plot per page for each variable. Variables are sorted alphabetically.

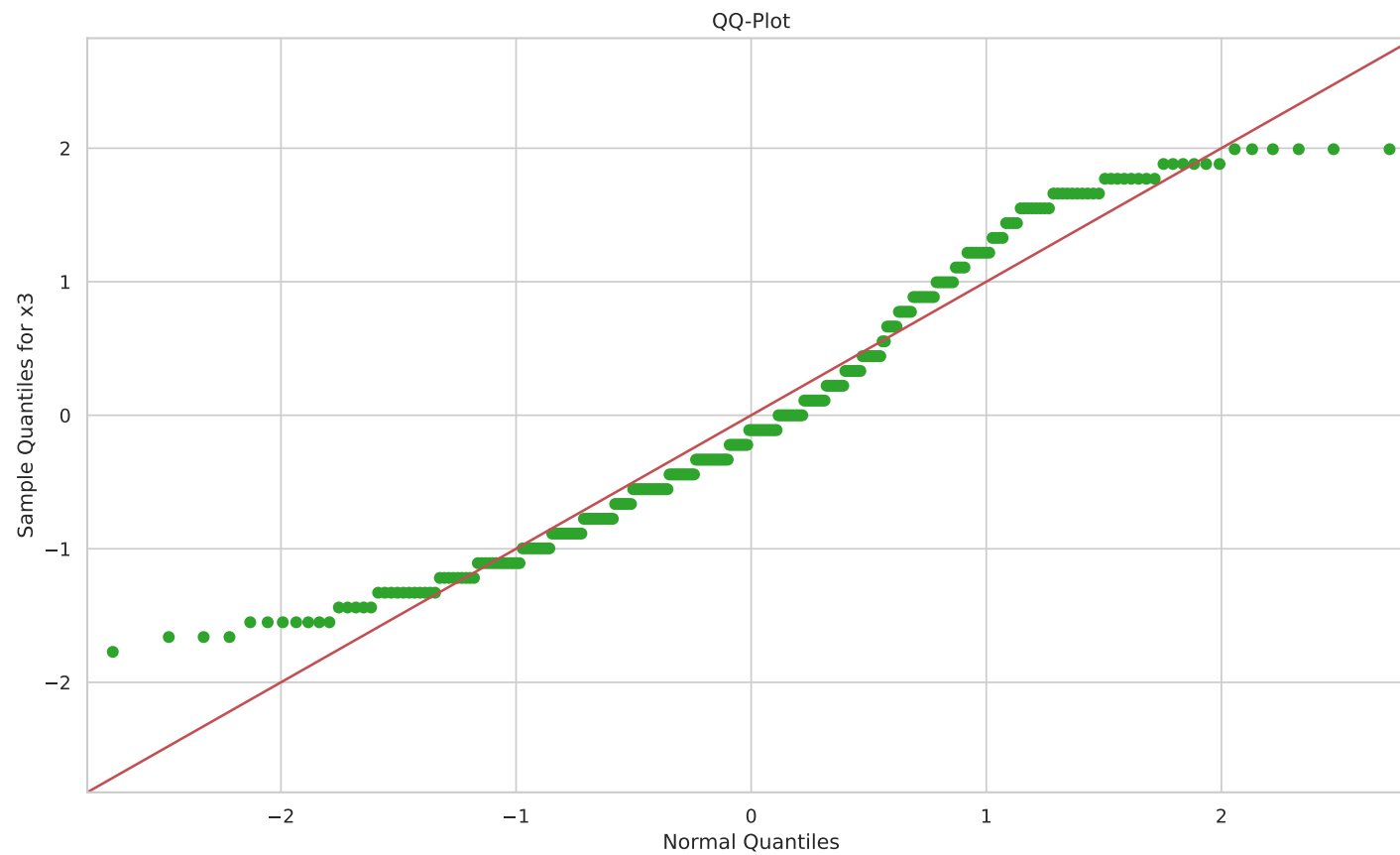
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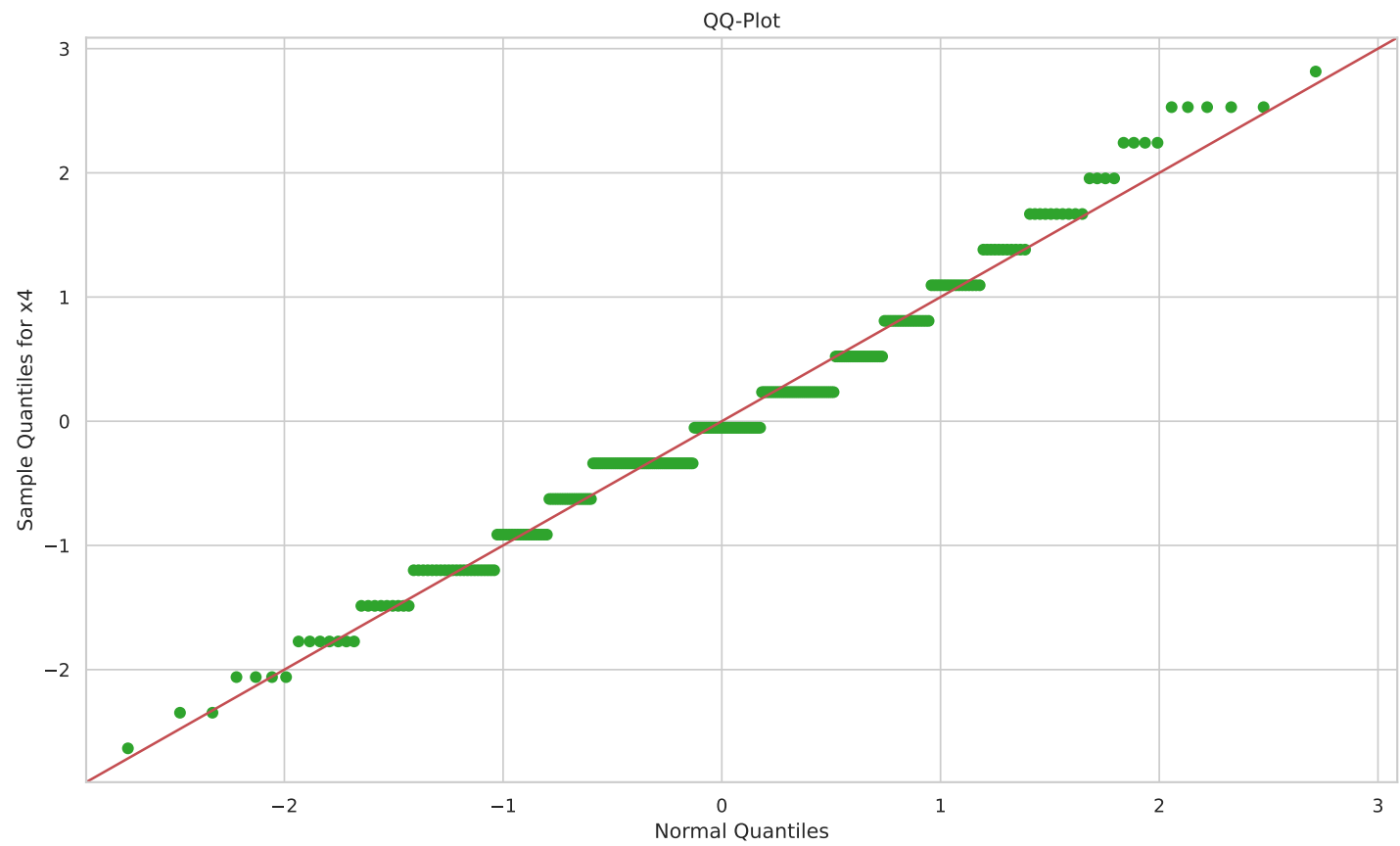


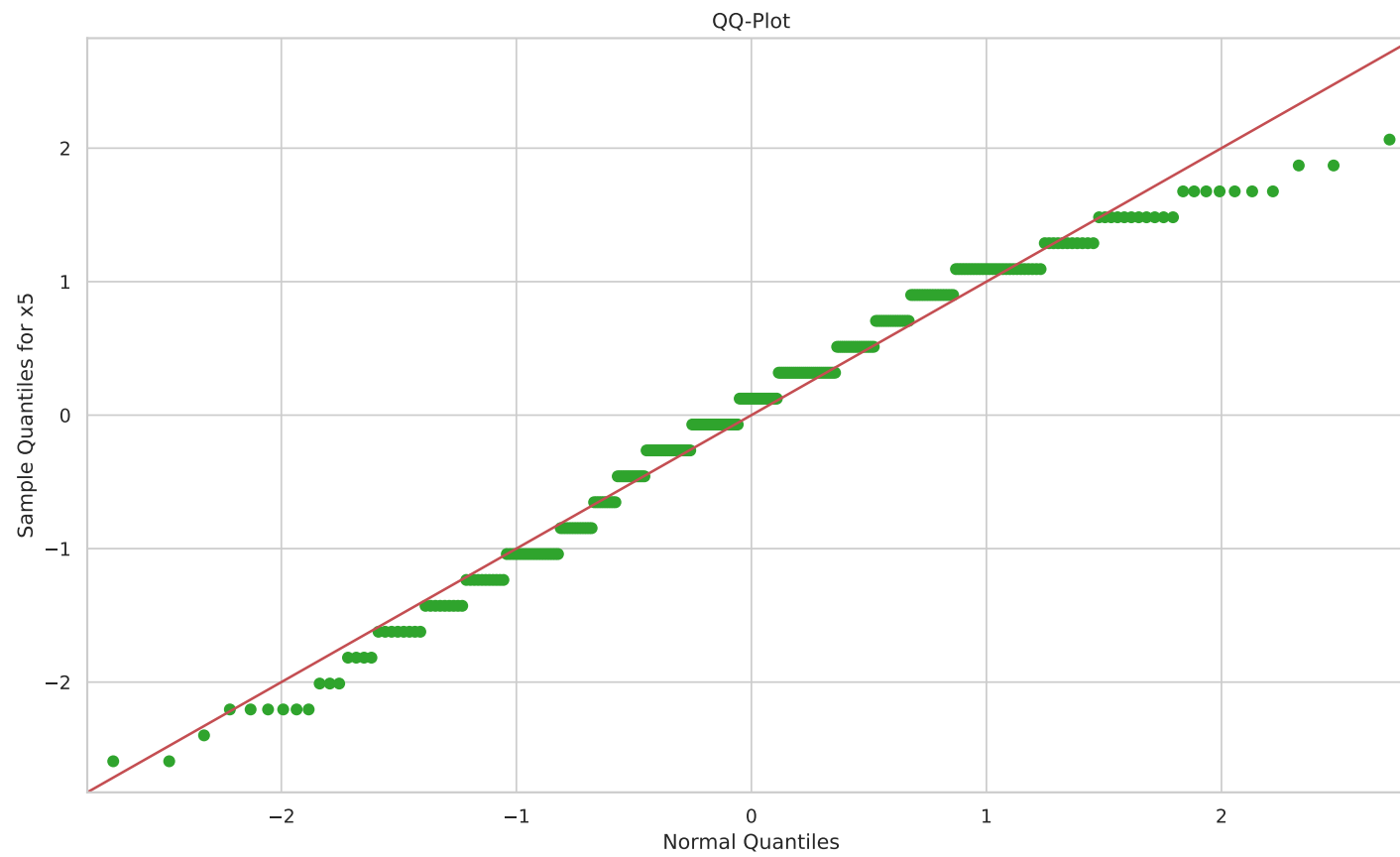


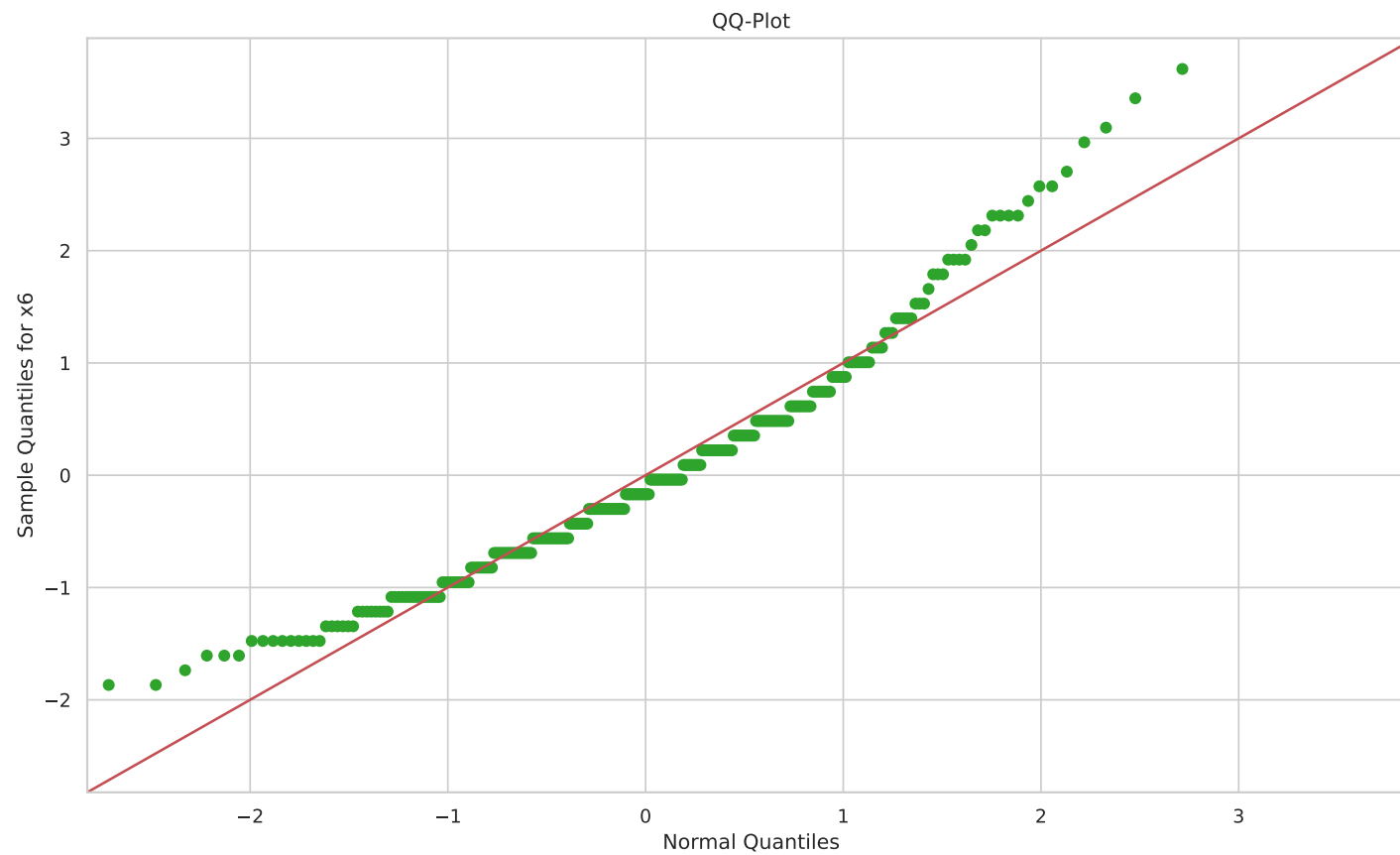




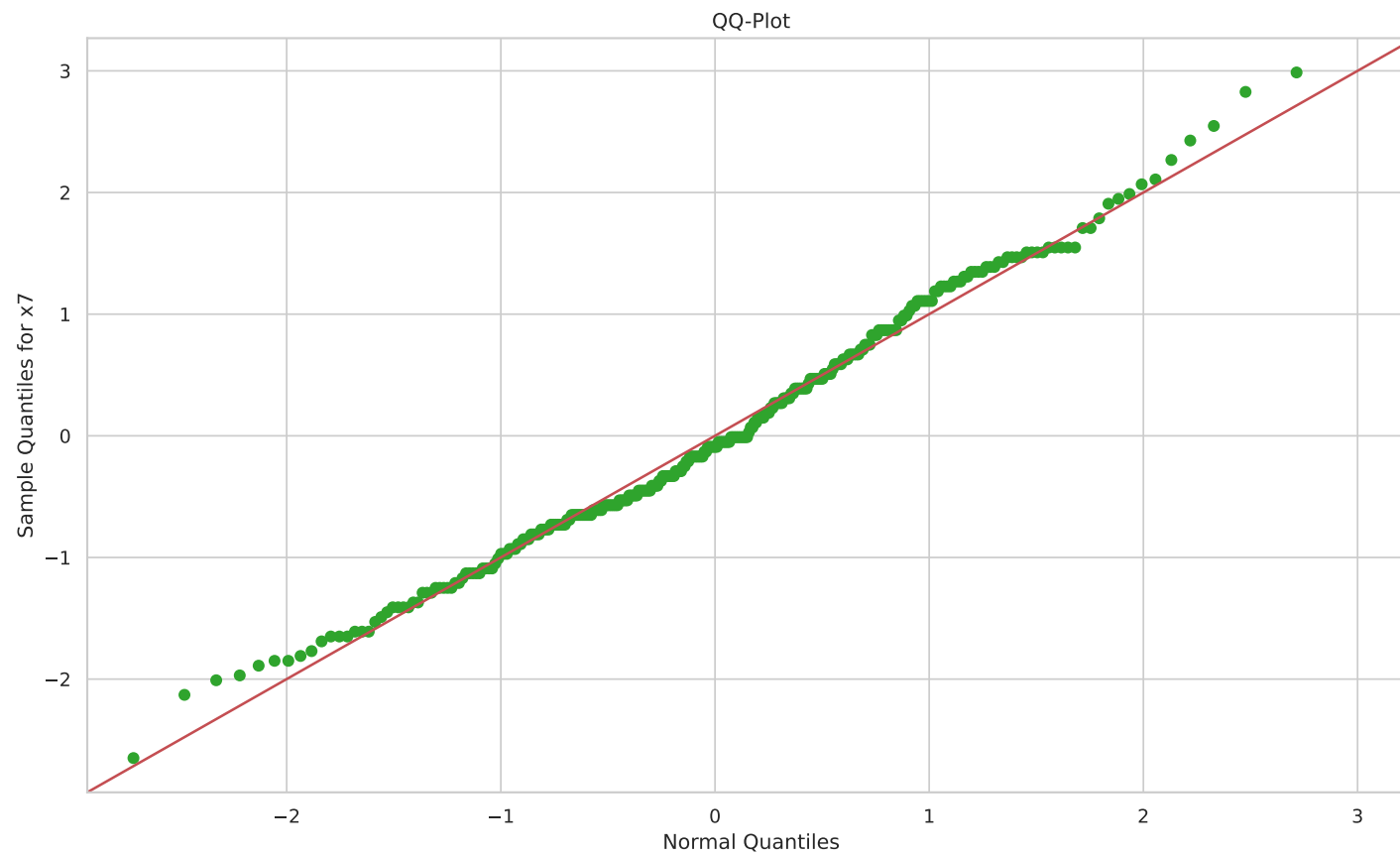


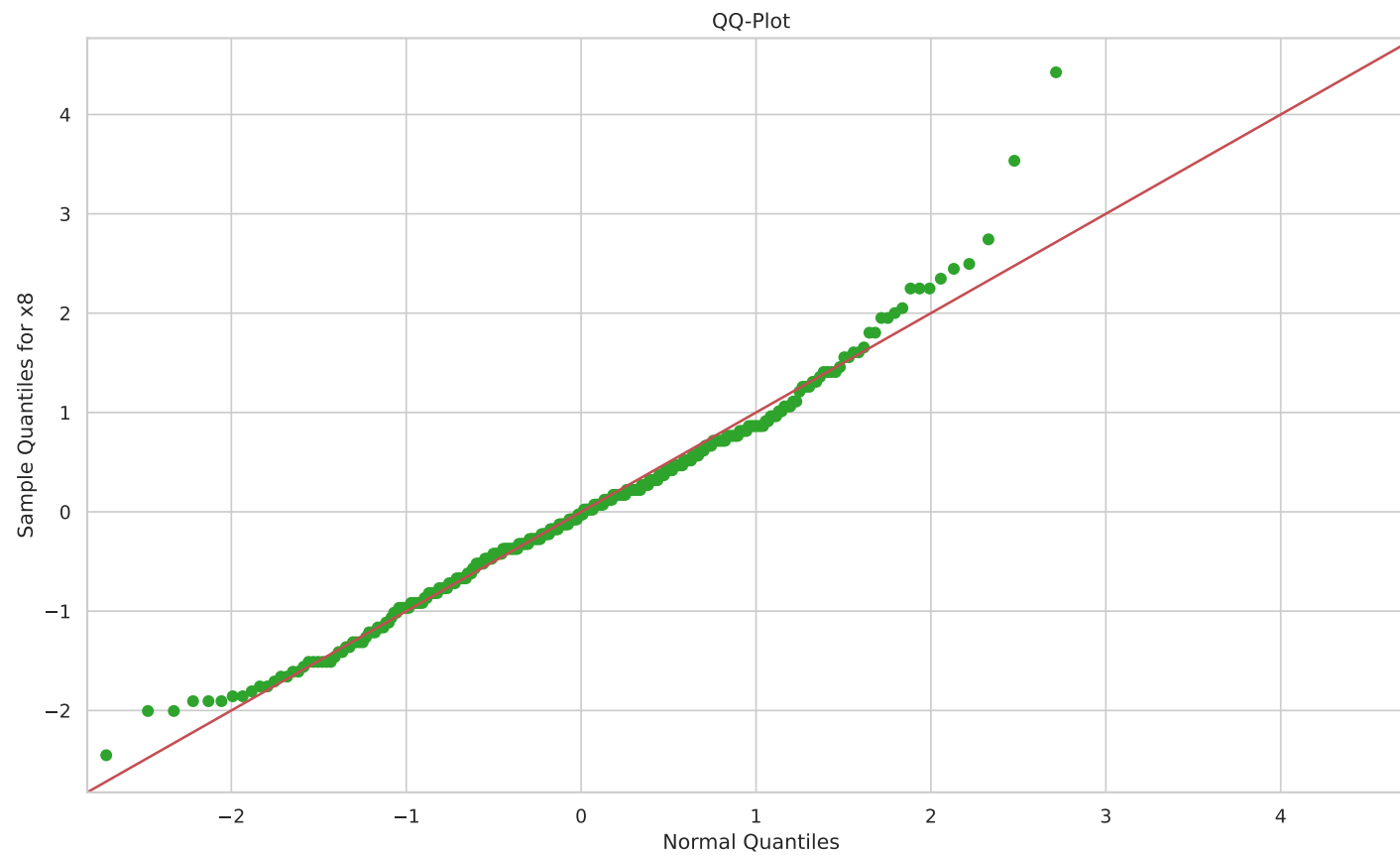


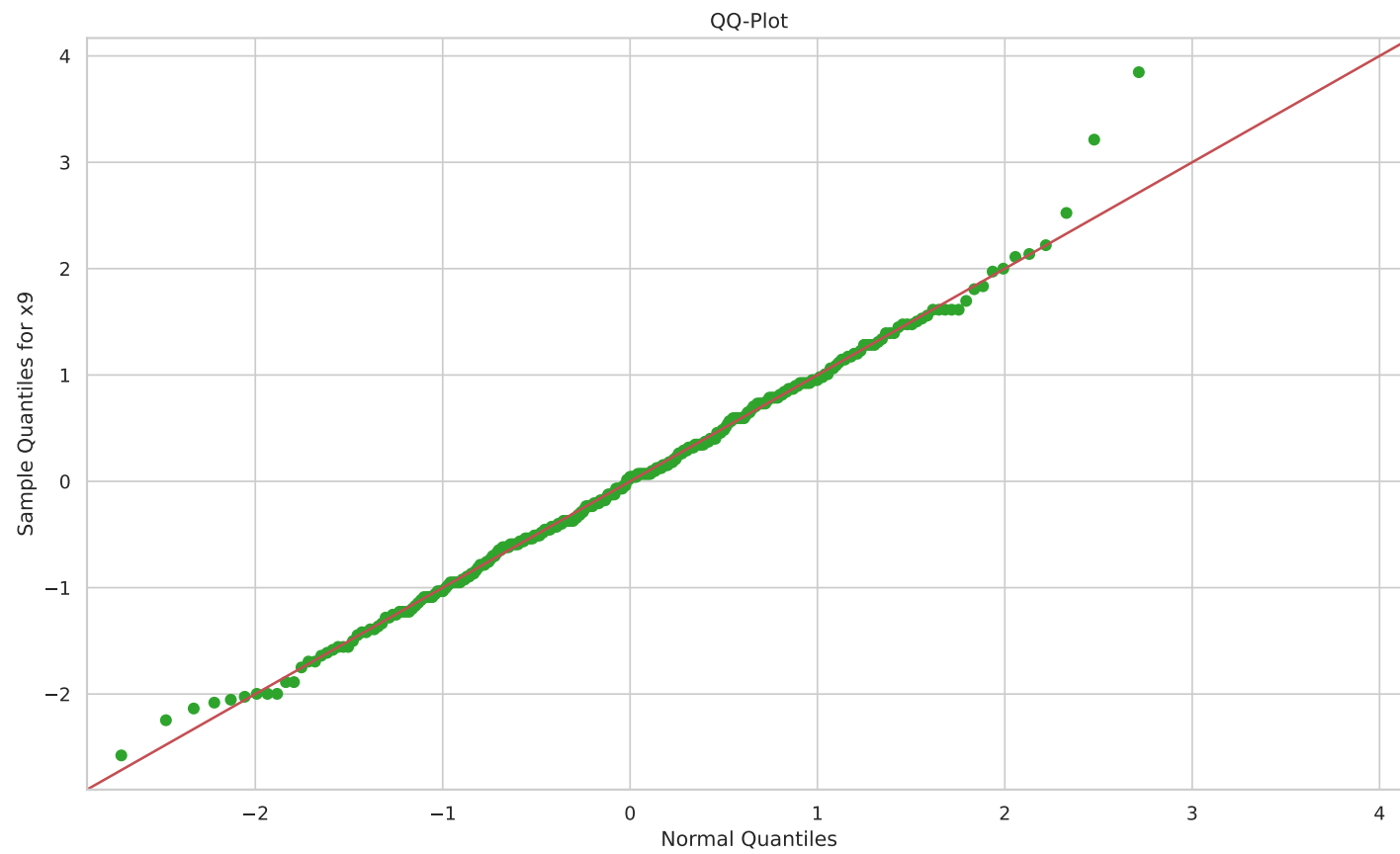






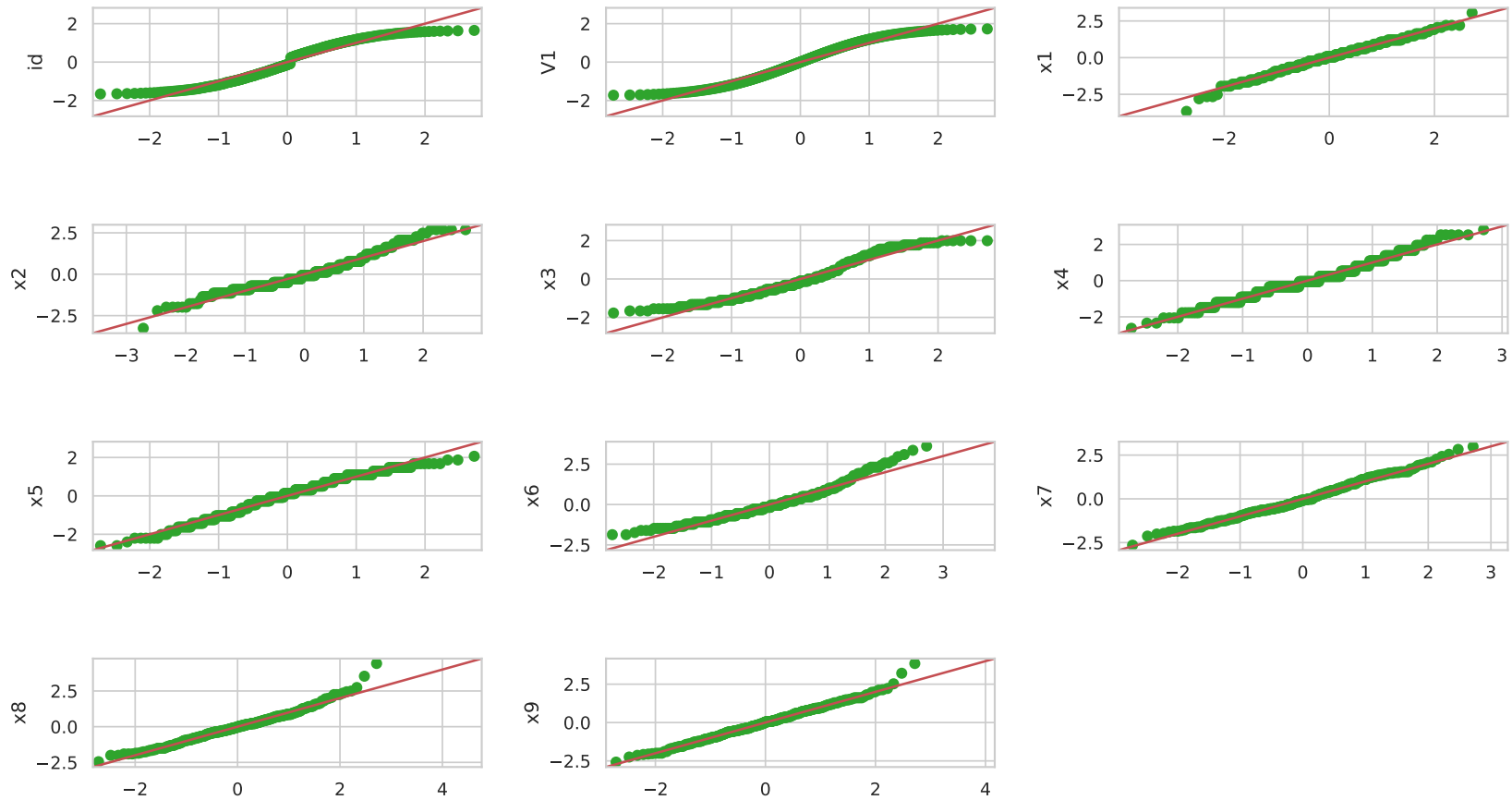






## QQ-Plots Summary

Multiple QQ-Plots of variables in one figure. Variables are sorted alphabetically.



## Results for Discrete Variables

### Descriptive Statistics

#### Totals

The table is sorted by the variable name. If any, N Unique contains the missing category.

	N Obs	N Missing	N Valid	% Complete	N Unique
agemo	301	0	301	100	12
ageyr	301	0	301	100	6
grade	301	1	300	99.67	3
school	301	0	301	100	2
sex	301	0	301	100	2

## Frequencies

The table is sorted by the variable name. For each variable, a maximum of 20 unique values are considered, sorted in decreasing order of their frequency. If any, missings are counted as a category.

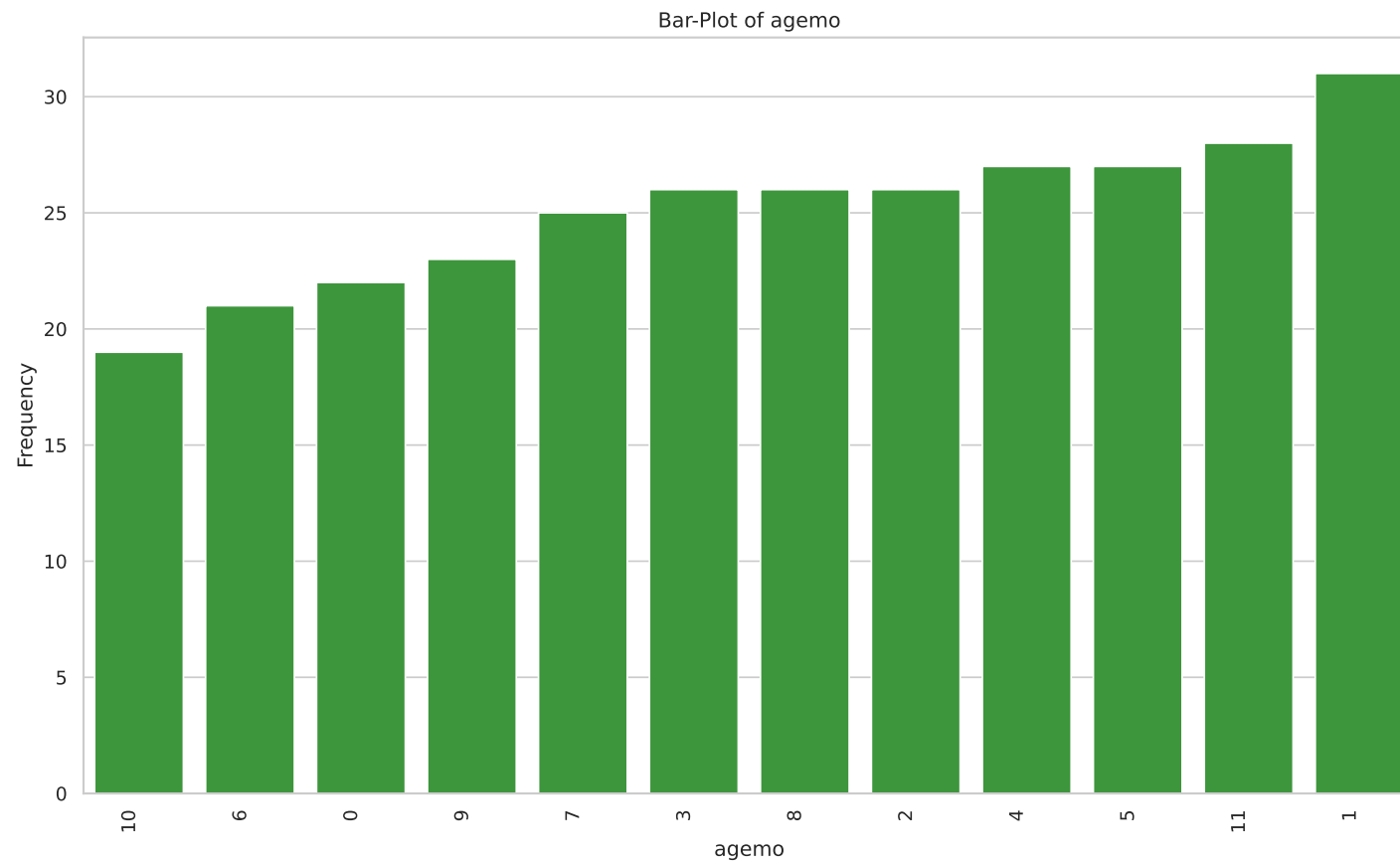
Variable	Category	Frequency	Percent
agemo	1	31	0.10299
agemo	11	28	0.0930233
agemo	4	27	0.089701
agemo	5	27	0.089701
agemo	2	26	0.0863787
agemo	3	26	0.0863787
agemo	8	26	0.0863787
agemo	7	25	0.0830565
agemo	9	23	0.076412
agemo	0	22	0.0730897
agemo	6	21	0.0697674
agemo	10	19	0.0631229
ageyr	13	110	0.365449
ageyr	12	101	0.335548
ageyr	14	55	0.182724
ageyr	15	20	0.0664452
ageyr	11	8	0.0265781
ageyr	16	7	0.0232558
grade	7	157	0.521595
grade	8	143	0.475083
grade	Missing	1	0.00332226
school	Pasteur	156	0.518272
school	Grant-White	145	0.481728
sex	2	155	0.51495
sex	1	146	0.48505

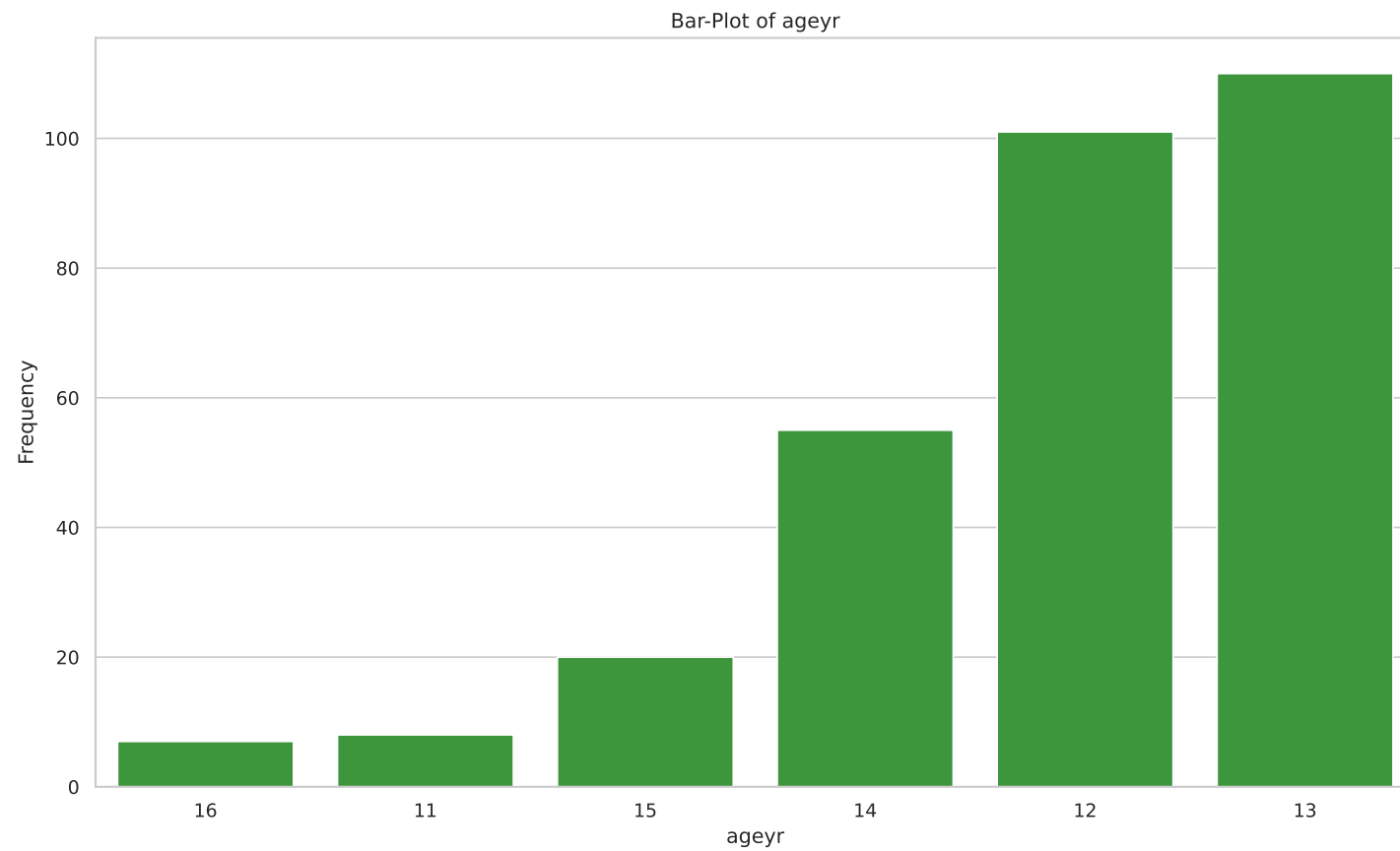
## Graphics

### Bar-Plots

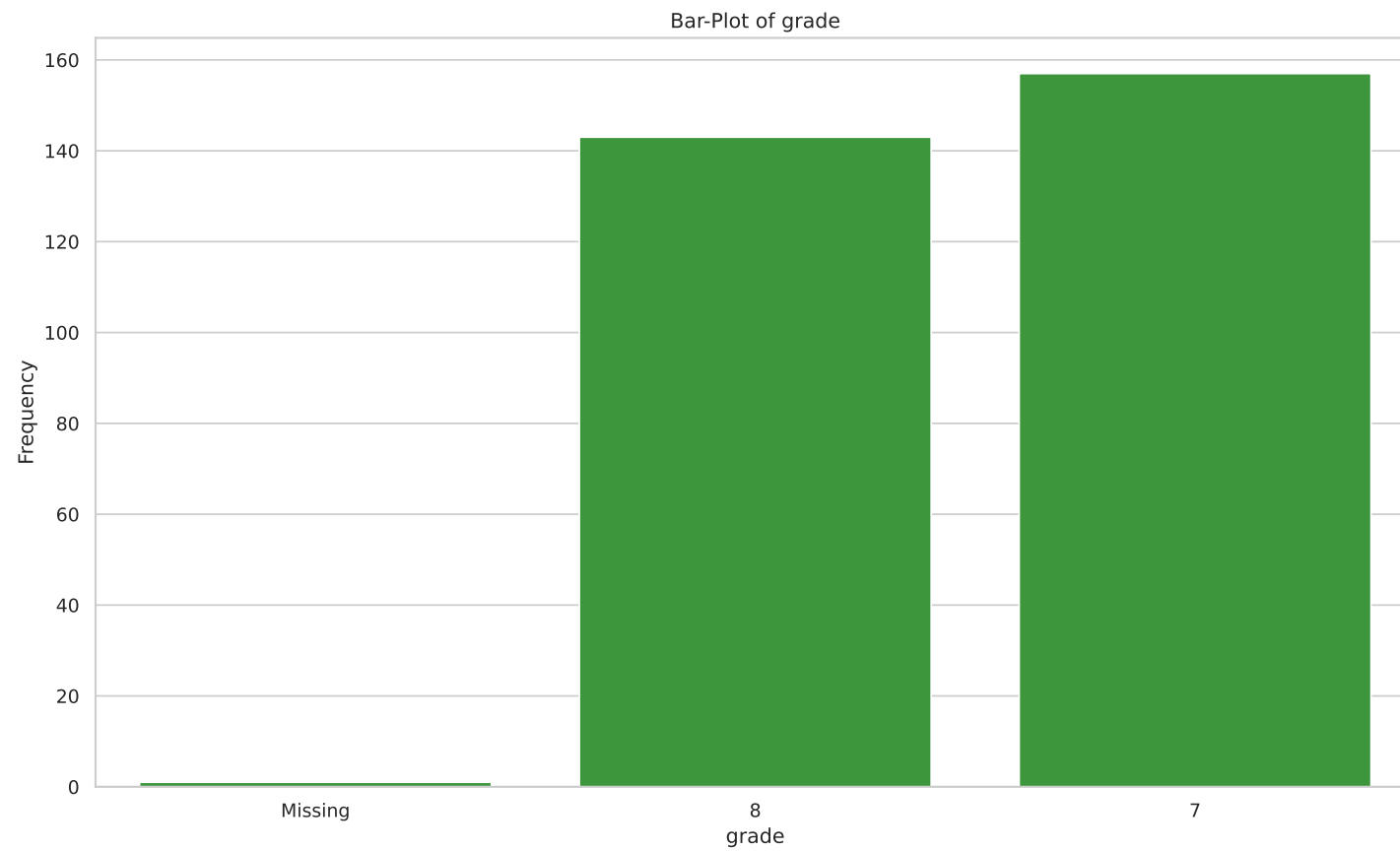
One Bar-Plot per page for each variable. Variables are sorted alphabetically. No labels for variables with more than 40 categories.

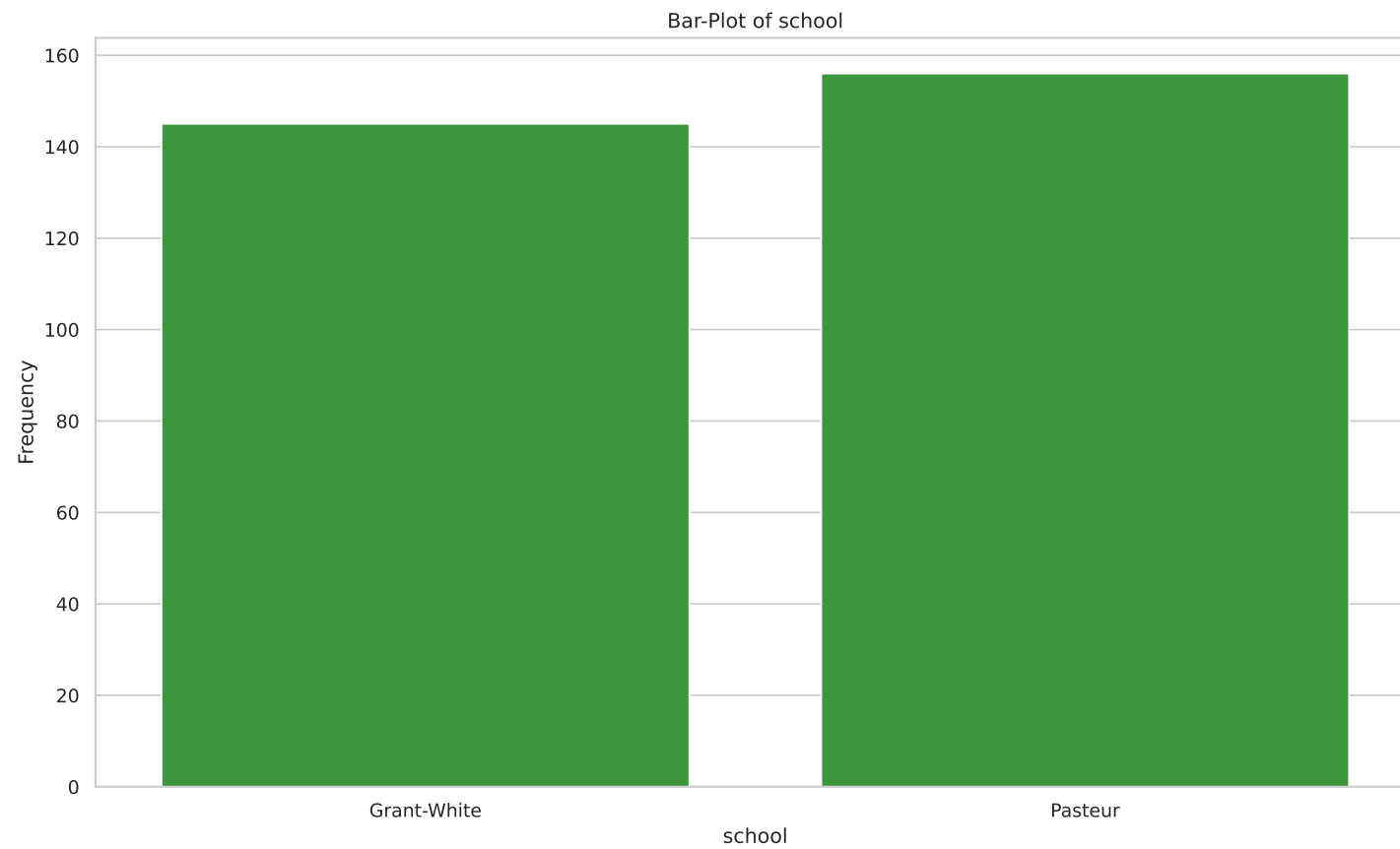
□

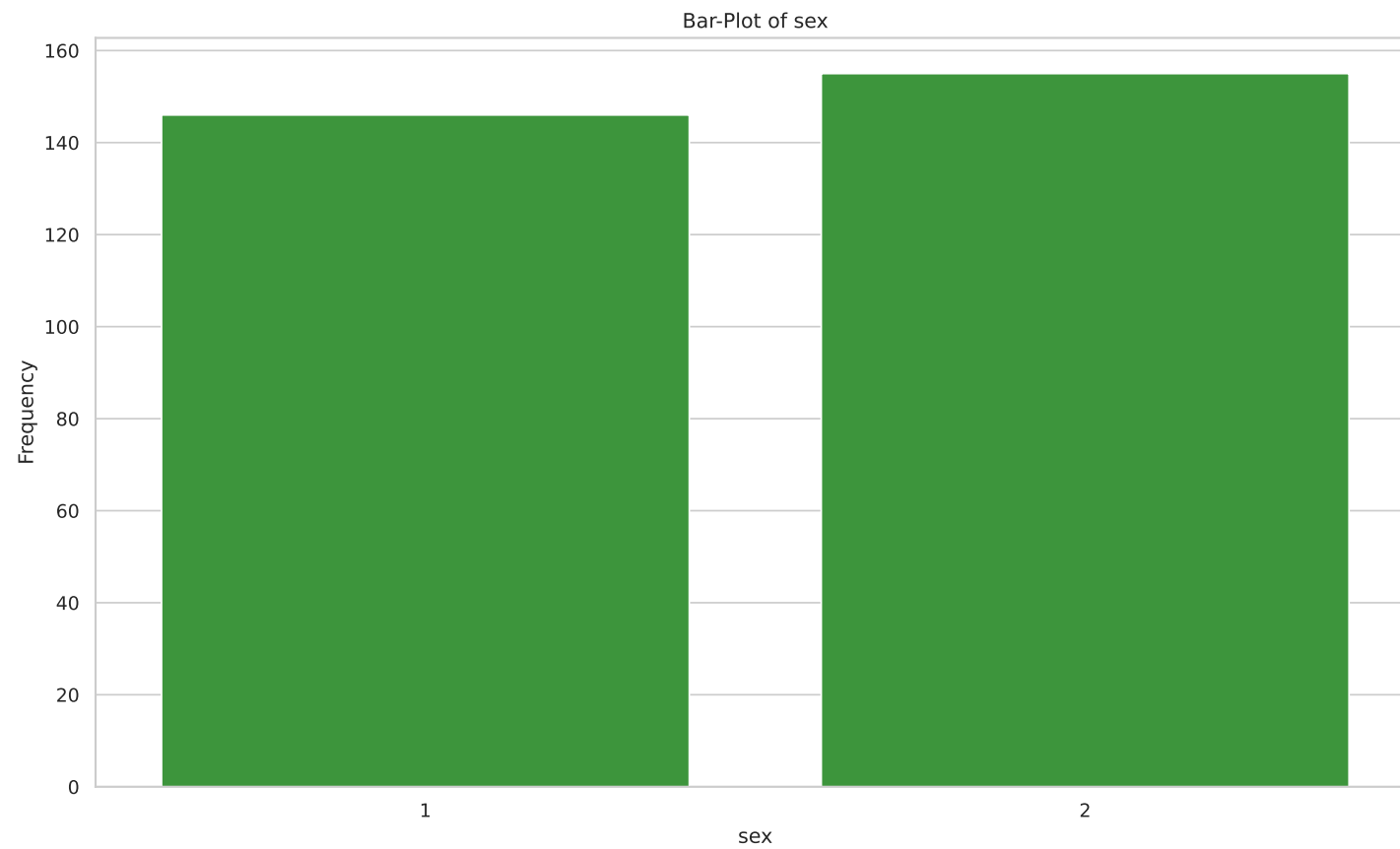






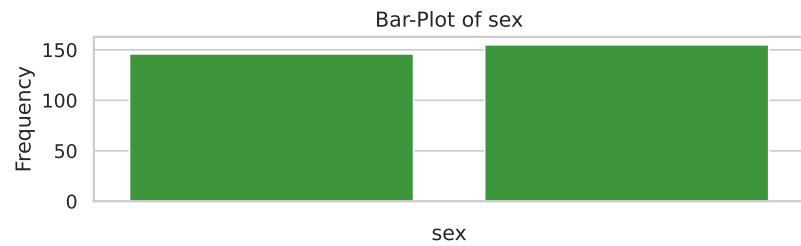
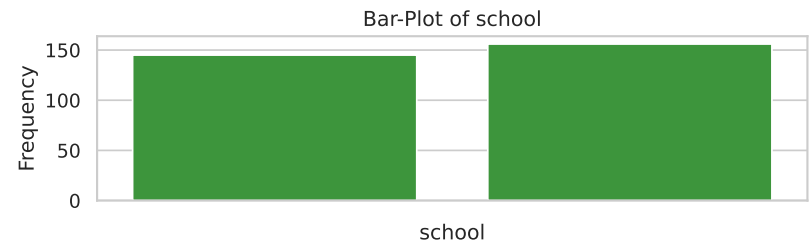
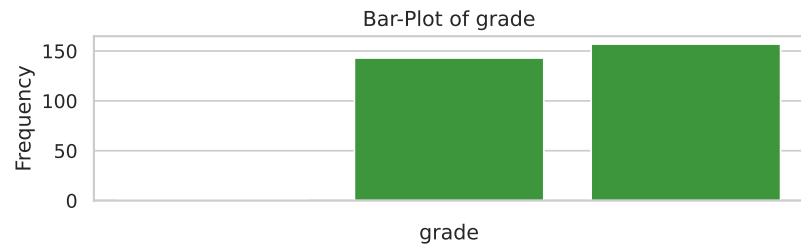
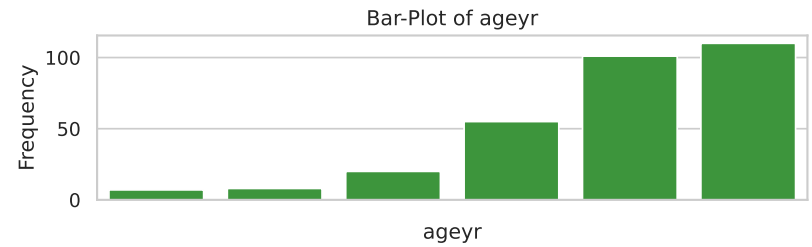
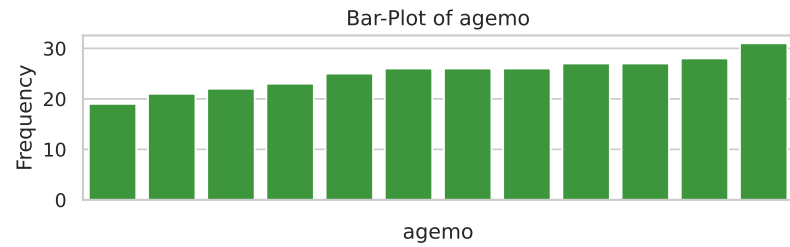






## Bar-Plots Summary

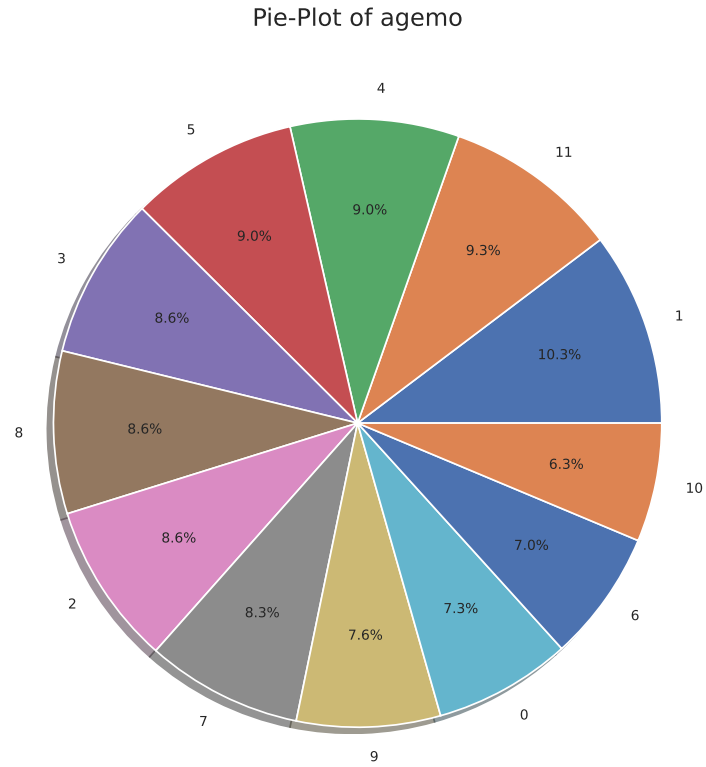
Multiple Bar-Plots of variables in one figure. Variables are sorted alphabetically. No labels displayed.



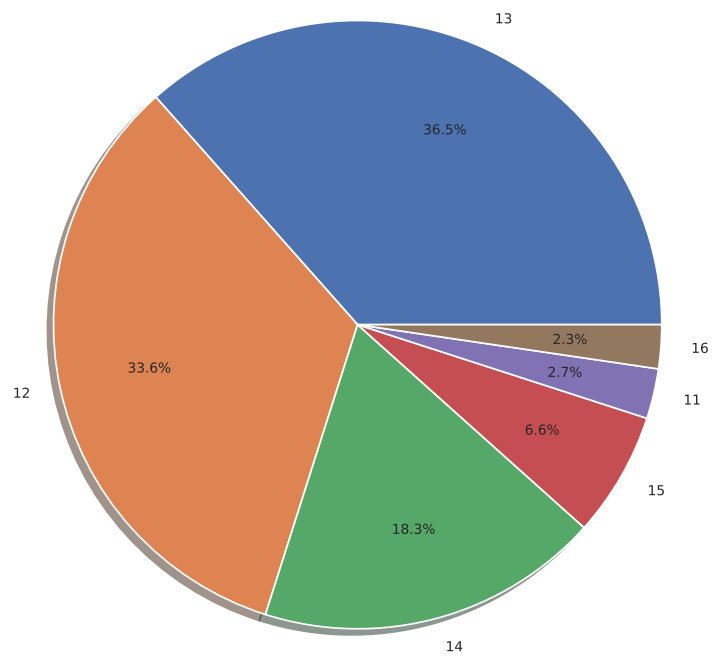
## Pie Plots

One Pie Plot per page for each variable. Variables are sorted alphabetically.

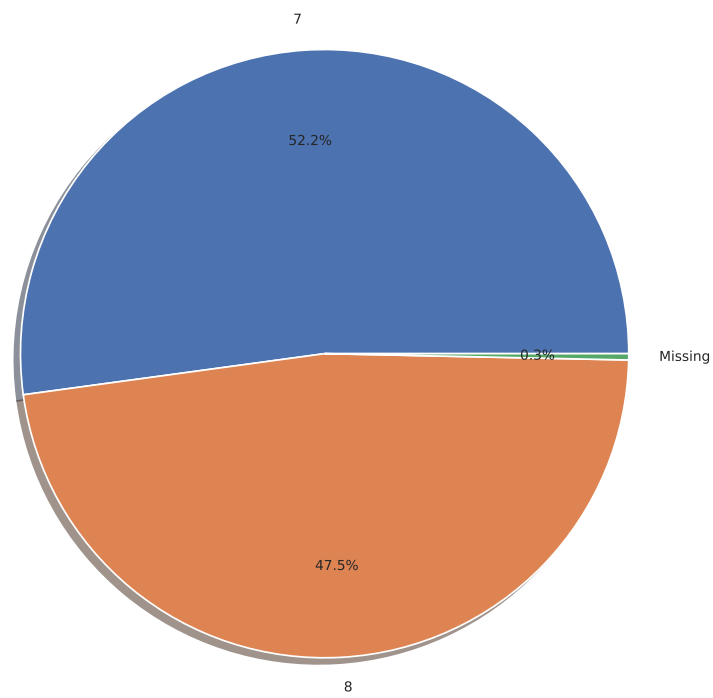
□



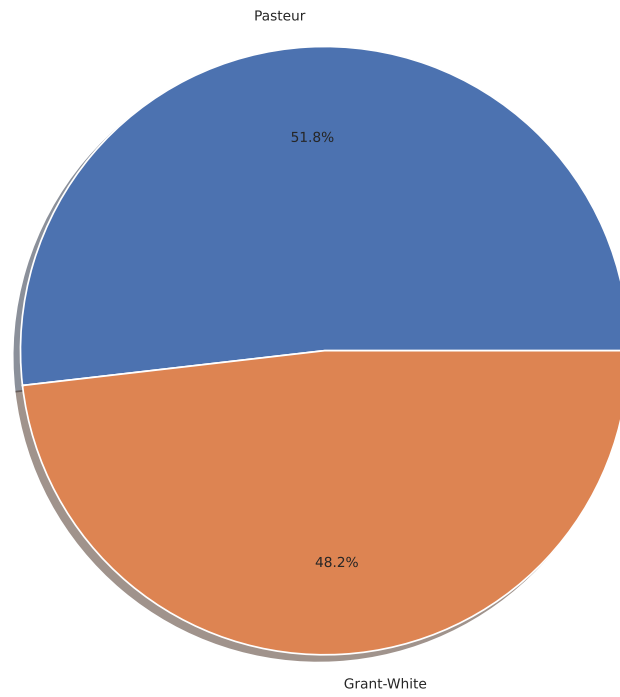
Pie-Plot of ageyr



Pie-Plot of grade

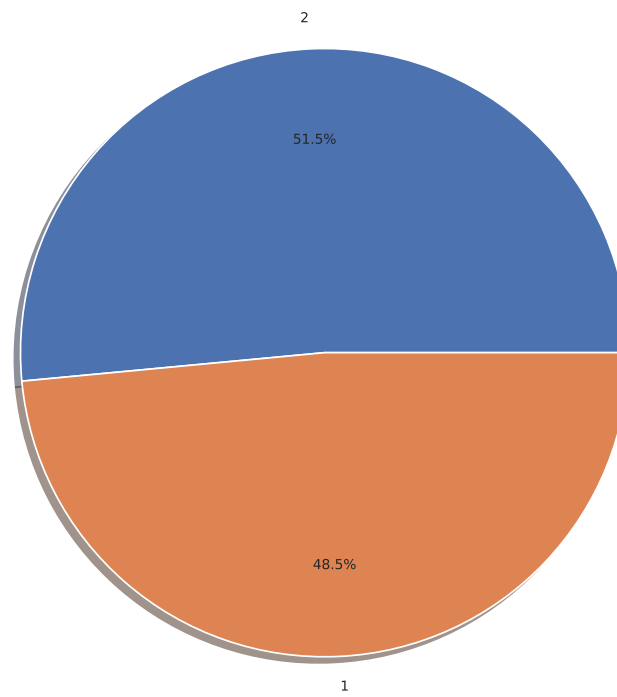


Pie-Plot of school





Pie-Plot of sex



### **Pie Plots Summary**

Multiple Pie Plots of variables in one figure. Variables are sorted alphabetically.

See figures on next page.

