The CONTENTS Procedure

Data Set Name	WORK.MTCARS	**Observations**	30
Member Type	DATA	**Variables**	12
Engine	V9	**Indexes**	0
Created	10/06/2025 14:48:43	**Observation Length**	96
Last Modified	10/06/2025 14:48:43	**Deleted Observations**	0
Protection		**Compressed**	NO
Data Set Type		**Sorted**	NO
Label			
Data Representation	SOLARIS_X86_64, LINUX_X86_64, ALPHA_TRU64, LINUX_IA64		
Encoding	utf-8 Unicode (UTF-8)		

Engine/Host Dependent Information	
Data Set Page Size	131072
Number of Data Set Pages	1
First Data Page	1
Max Obs per Page	1363
Obs in First Data Page	30
Number of Data Set Repairs	0
Filename	/saswork/SAS_workB0460000EF6F_odaws02-apse1.oda.sas.com/SAS_work09B90000EF6F_odaws02-apse1.oda.sas.com/mtcars.sas7bdat
Release Created	9.0401M8
Host Created	Linux
Inode Number	536871119
Access Permission	rw-r--r--
Owner Name	u64294500
File Size	256KB
File Size (bytes)	262144

Alphabetic List of Variables and Attributes

#	Variable	Type	Len
10	am	Num	8
1	car	Char	8
12	carb	Num	8
3	cyl	Num	8
4	disp	Num	8
6	drat	Num	8
11	gear	Num	8
5	hp	Num	8
2	mpg	Num	8
8	qsec	Num	8
9	vs	Num	8
7	wt	Num	8

The CONTENTS Procedure

Data Set Name	WORK.MTCARS	**Observations**	30
Member Type	DATA	**Variables**	12
Engine	V9	**Indexes**	0
Created	10/06/2025 14:48:43	**Observation Length**	96

Last Modified	10/06/2025 14:48:43	**Deleted Observations**	0
Protection		**Compressed**	NO
Data Set Type		**Sorted**	NO
Label			
Data Representation	SOLARIS_X86_64, LINUX_X86_64, ALPHA_TRU64, LINUX_IA64		
Encoding	utf-8 Unicode (UTF-8)		

Engine/Host Dependent Information	
Data Set Page Size	131072
Number of Data Set Pages	1
First Data Page	1
Max Obs per Page	1363
Obs in First Data Page	30
Number of Data Set Repairs	0
Filename	/saswork/SAS_workB0460000EF6F_odaws02-apse1.oda.sas.com/SAS_work09B90000EF6F_odaws02-apse1.oda.sas.com/mtcars.sas7bdat
Release Created	9.0401M8
Host Created	Linux
Inode Number	536871119
Access Permission	rw-r--r--
Owner Name	u64294500
File Size	256KB
File Size (bytes)	262144

Variables in Creation Order			
#	**Variable**	**Type**	**Len**
1	car	Char	8
2	mpg	Num	8
3	cyl	Num	8
4	disp	Num	8
5	hp	Num	8
6	drat	Num	8
7	wt	Num	8
8	qsec	Num	8
9	vs	Num	8
10	am	Num	8
11	gear	Num	8
12	carb	Num	8

The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum	Maximum
mpg	30	20.3466667	6.1374337	10.4000000	33.9000000
cyl	30	6.0666667	1.7798360	4.0000000	8.0000000
disp	30	227.7166667	127.5565840	71.1000000	472.0000000
hp	30	144.4666667	70.3095291	52.0000000	335.0000000
drat	30	3.6316667	0.5340417	2.7600000	4.9300000
wt	30	3.1814000	1.0010441	1.5130000	5.4240000
qsec	30	17.8520000	1.8467407	14.5000000	22.9000000
vs	30	0.4666667	0.5074163	0	1.0000000
am	30	0.4333333	0.5040069	0	1.0000000
gear	30	3.7333333	0.7396800	3.0000000	5.0000000
carb	30	2.8000000	1.6691935	1.0000000	8.0000000

The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum	Maximum
mpg	30	20.35	6.14	10.40	33.90
cyl	30	6.07	1.78	4.00	8.00
disp	30	227.72	127.56	71.10	472.00
hp	30	144.47	70.31	52.00	335.00
drat	30	3.63	0.53	2.76	4.93
wt	30	3.18	1.00	1.51	5.42
qsec	30	17.85	1.85	14.50	22.90
vs	30	0.47	0.51	0.00	1.00
am	30	0.43	0.50	0.00	1.00
gear	30	3.73	0.74	3.00	5.00
carb	30	2.80	1.67	1.00	8.00

The MEANS Procedure

Analysis Variable : mpg				
N	Mean	Std Dev	Minimum	Maximum
30	20.3466667	6.1374337	10.4000000	33.9000000

The FREQ Procedure

car	Frequency	Percent	Cumulative Frequency	Cumulative Percent
AMC_Javl	1	3.33	1	3.33
Cadillac	1	3.33	2	6.67
Camaro	1	3.33	3	10.00
Chrysler	1	3.33	4	13.33
Datsun	1	3.33	5	16.67
Dodge	1	3.33	6	20.00
Duster	1	3.33	7	23.33
Ferrari	1	3.33	8	26.67
FiatX1-9	1	3.33	9	30.00
Fiat_128	1	3.33	10	33.33
Ford	1	3.33	11	36.67
Honda_C	1	3.33	12	40.00
Hornet	1	3.33	13	43.33
HornetSp	1	3.33	14	46.67
Lincoln	1	3.33	15	50.00
Lotus	1	3.33	16	53.33
Maserati	1	3.33	17	56.67
MazdaRX4	1	3.33	18	60.00
MazdaWag	1	3.33	19	63.33
Merc240D	1	3.33	20	66.67
Merc280C	1	3.33	21	70.00
Merc450S	1	3.33	22	73.33
Merc_230	1	3.33	23	76.67
Merc_280	1	3.33	24	80.00
Pontiac	1	3.33	25	83.33
Porsche	1	3.33	26	86.67
Toyota	1	3.33	27	90.00
Toyota_C	1	3.33	28	93.33
Valiant	1	3.33	29	96.67

car	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Volvo	1	3.33	30	100.00

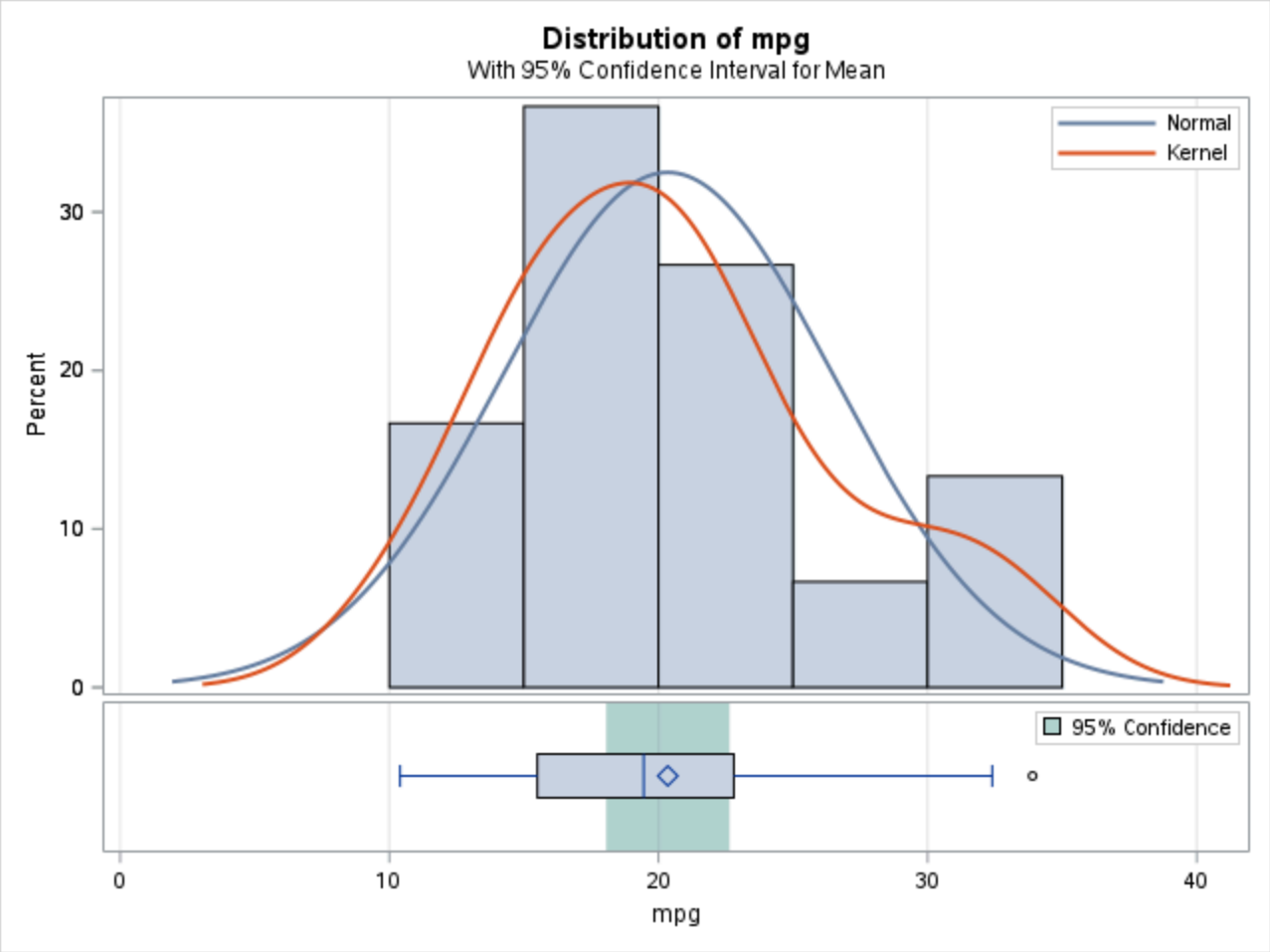
The TTEST Procedure

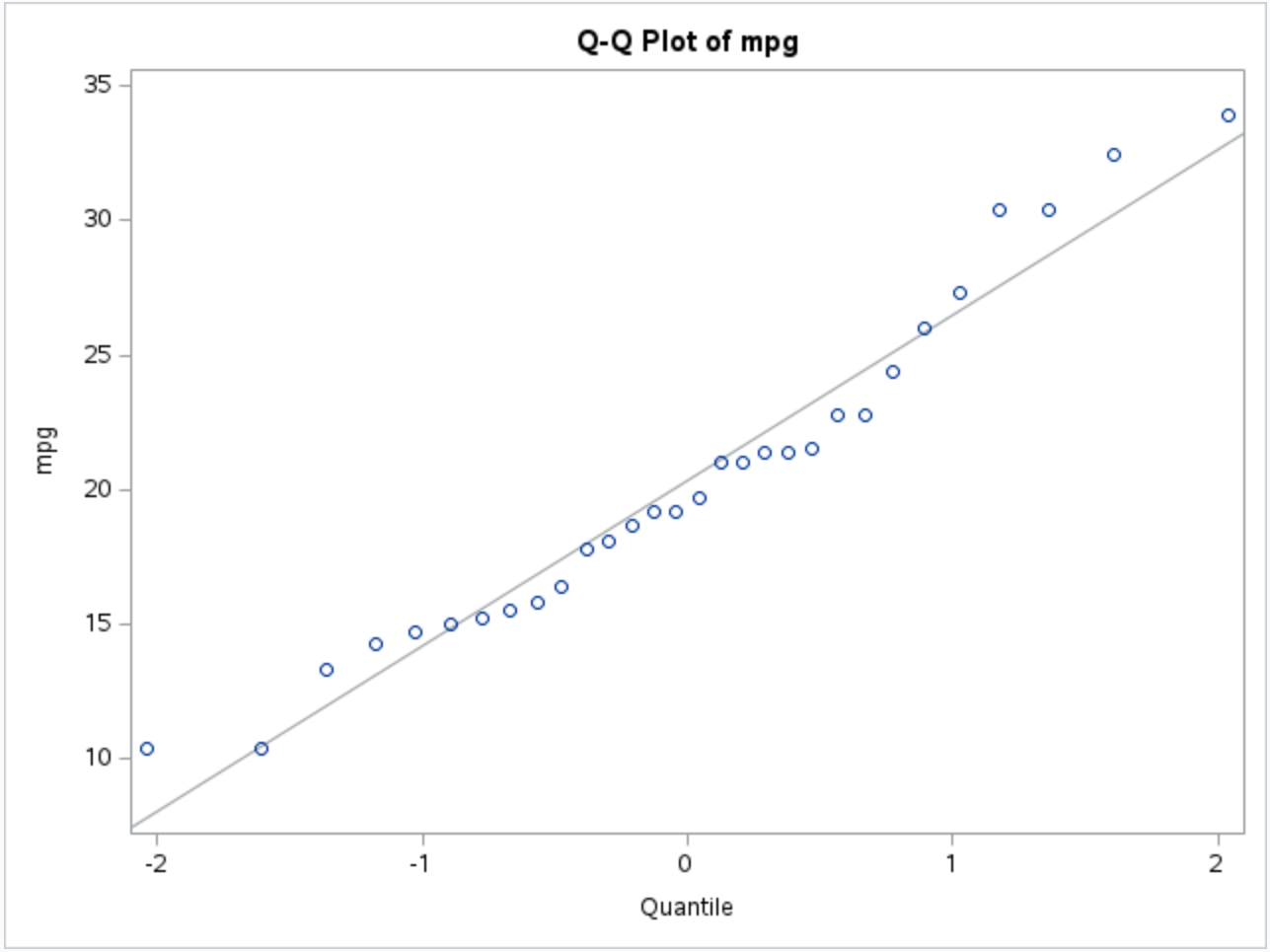
Variable: mpg

N	Mean	Std Dev	Std Err	Minimum	Maximum
30	20.3467	6.1374	1.1205	10.4000	33.9000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
20.3467	18.0549	22.6384	6.1374	4.8879	8.2506

DF	t Value	Pr > |t|
29	18.16	<.0001



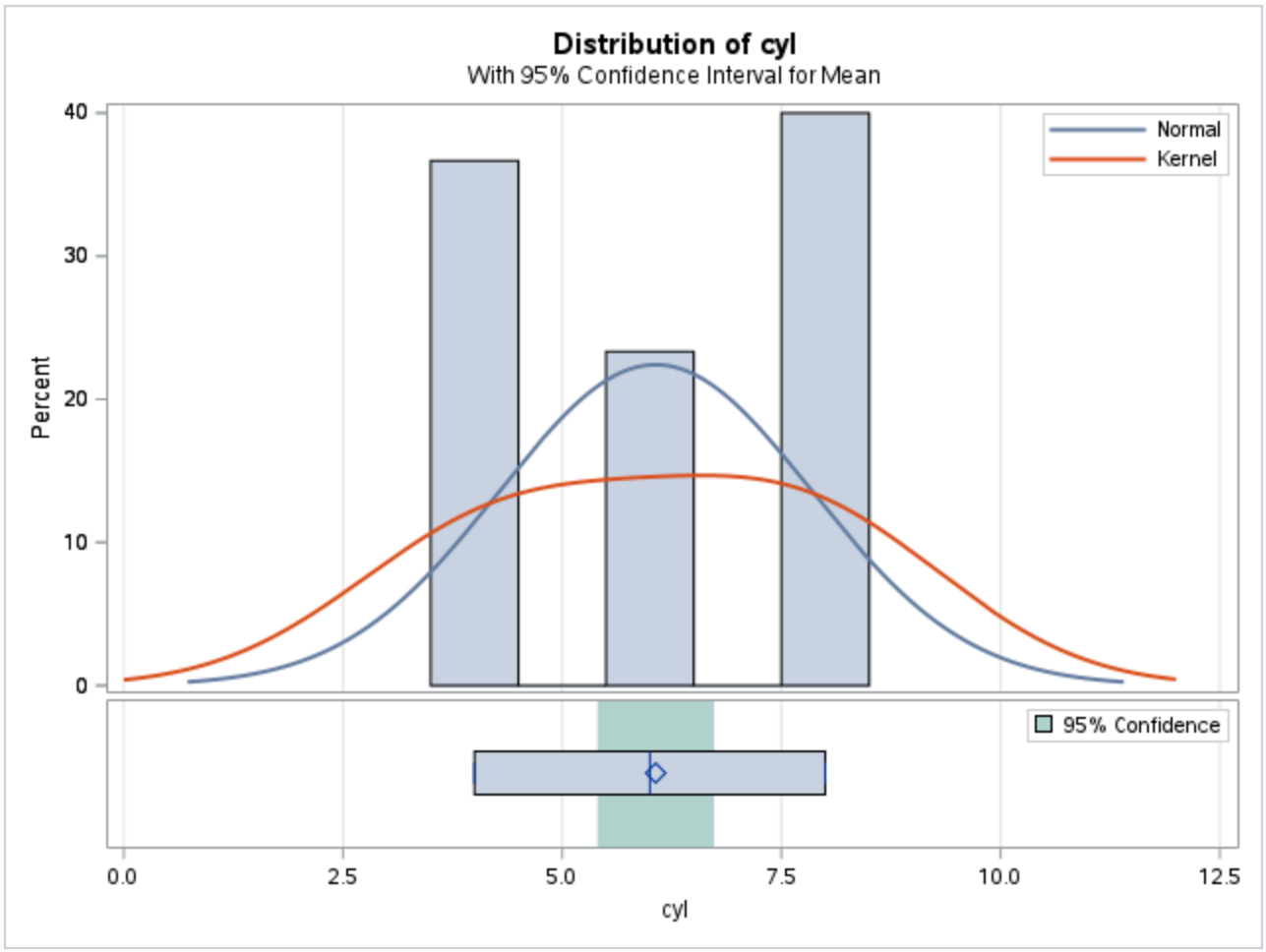


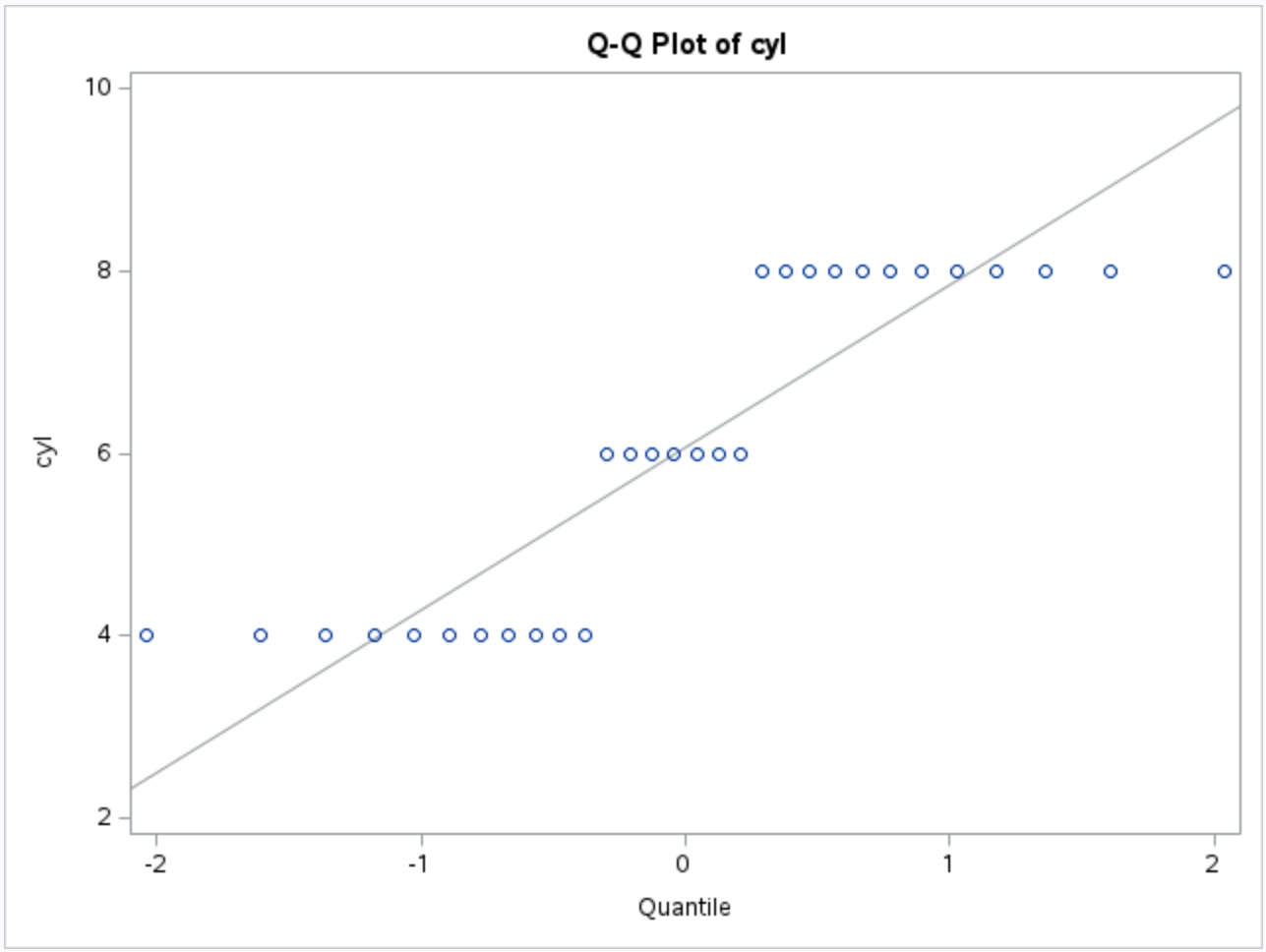
Variable: cyl

N	Mean	Std Dev	Std Err	Minimum	Maximum
30	6.0667	1.7798	0.3250	4.0000	8.0000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
6.0667	5.4021	6.7313	1.7798	1.4175	2.3927

DF	t Value	Pr > |t|
29	18.67	<.0001



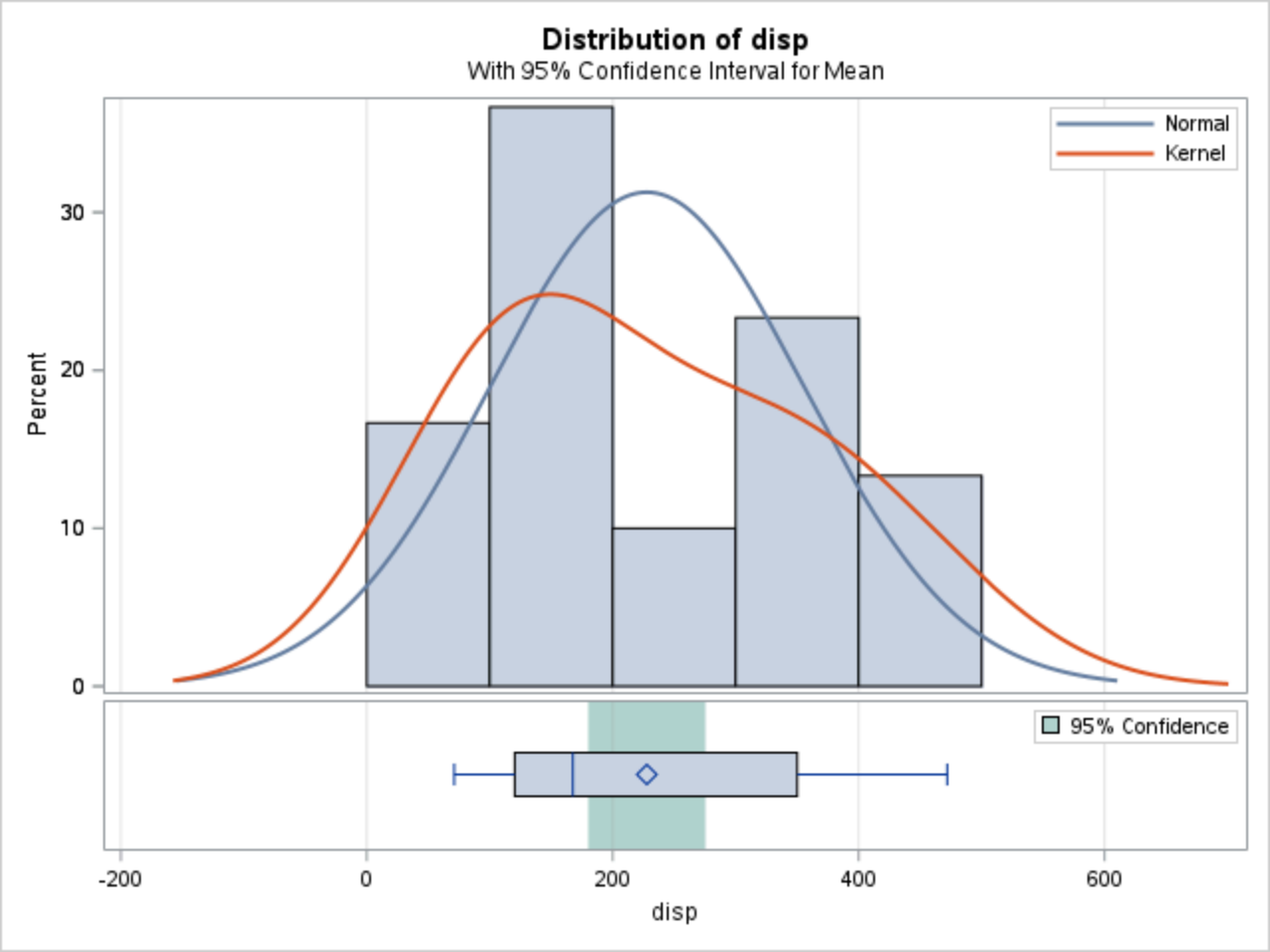


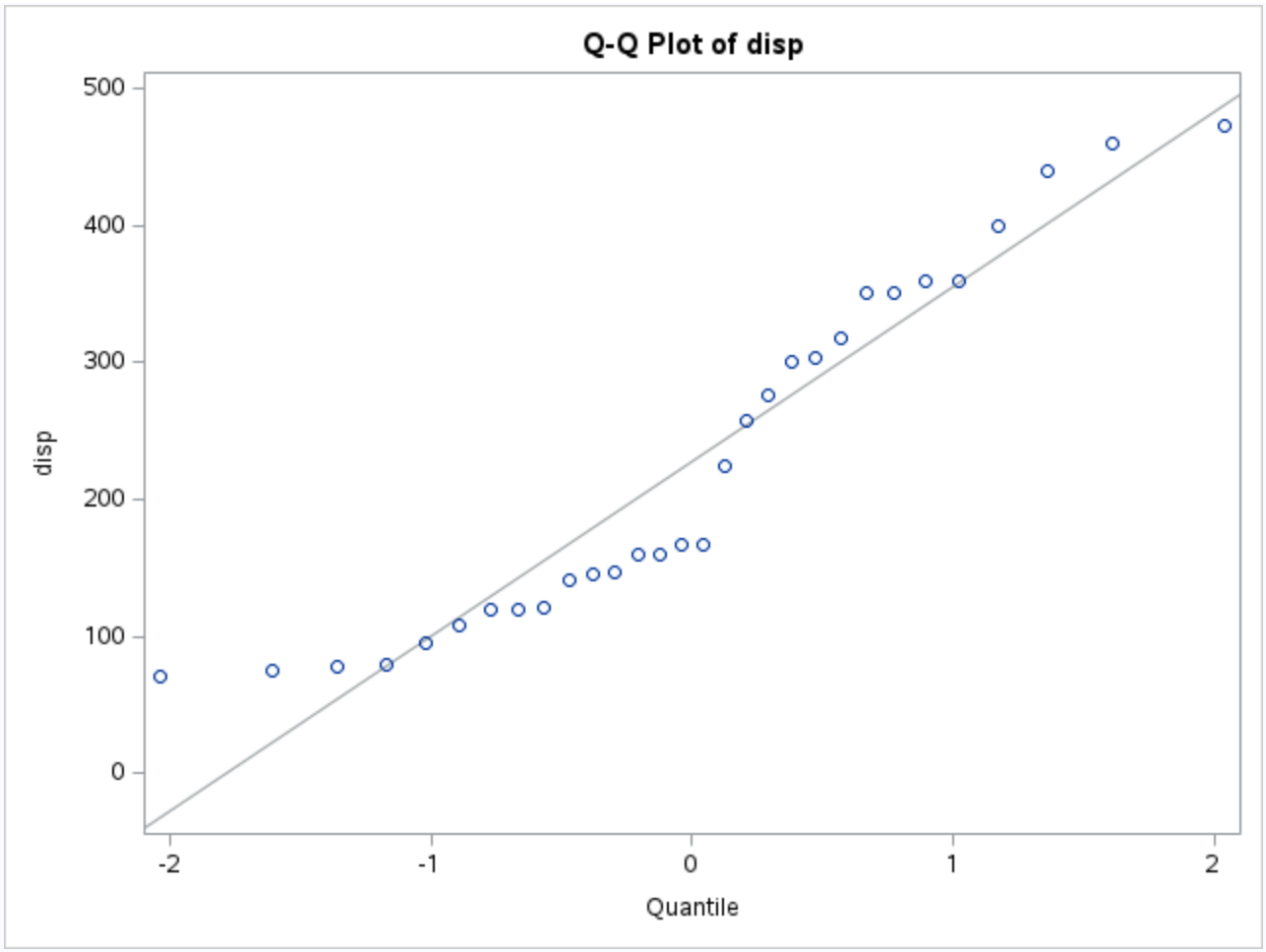
Variable: disp

N	Mean	Std Dev	Std Err	Minimum	Maximum
30	227.7	127.6	23.2885	71.1000	472.0

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
227.7	180.1	275.3	127.6	101.6	171.5

DF	t Value	Pr > |t|
29	9.78	<.0001



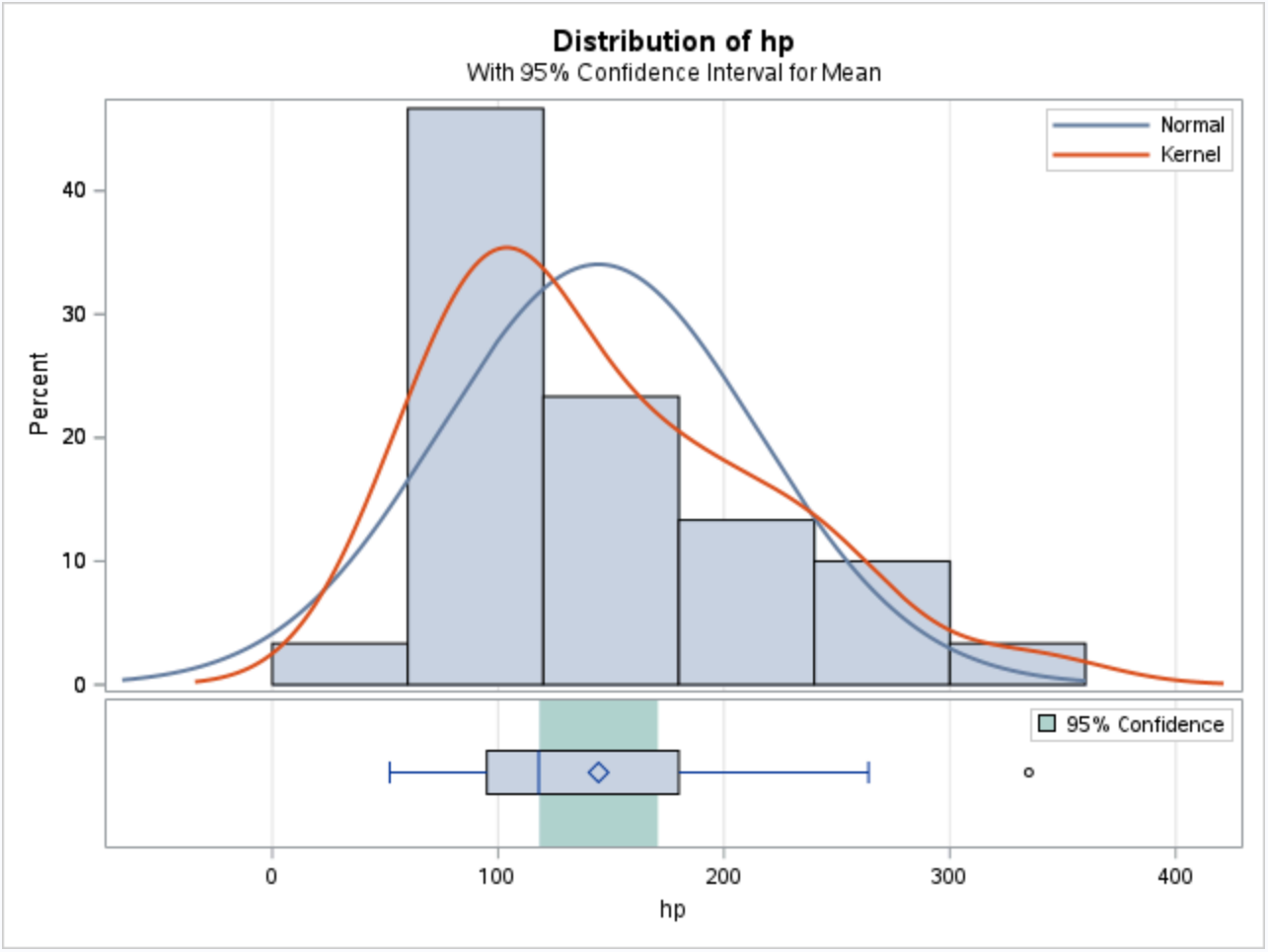


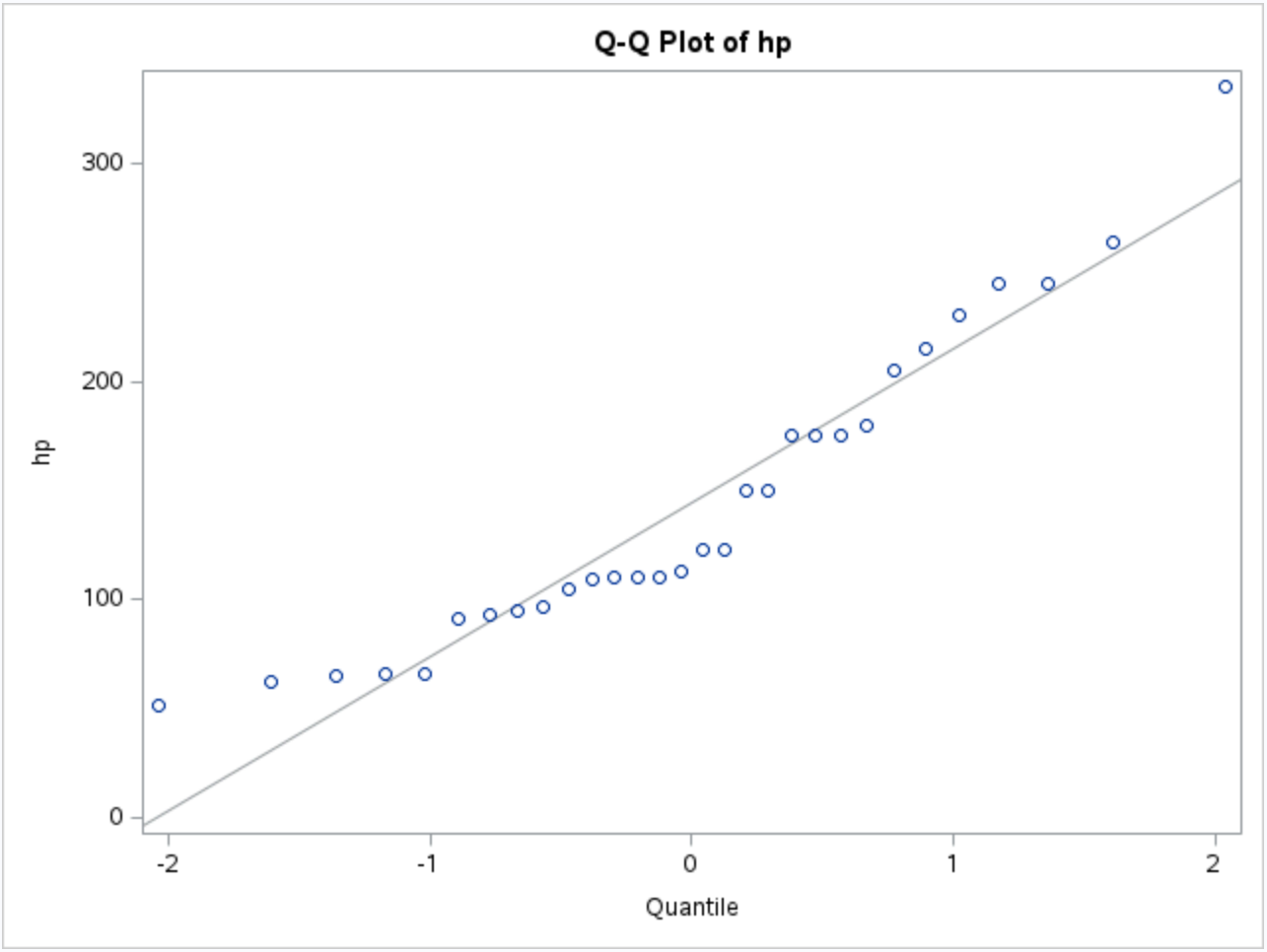
Variable: hp

N	Mean	Std Dev	Std Err	Minimum	Maximum
30	144.5	70.3095	12.8367	52.0000	335.0

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
144.5	118.2	170.7	70.3095	55.9950	94.5182

DF	t Value	Pr > |t|
29	11.25	<.0001



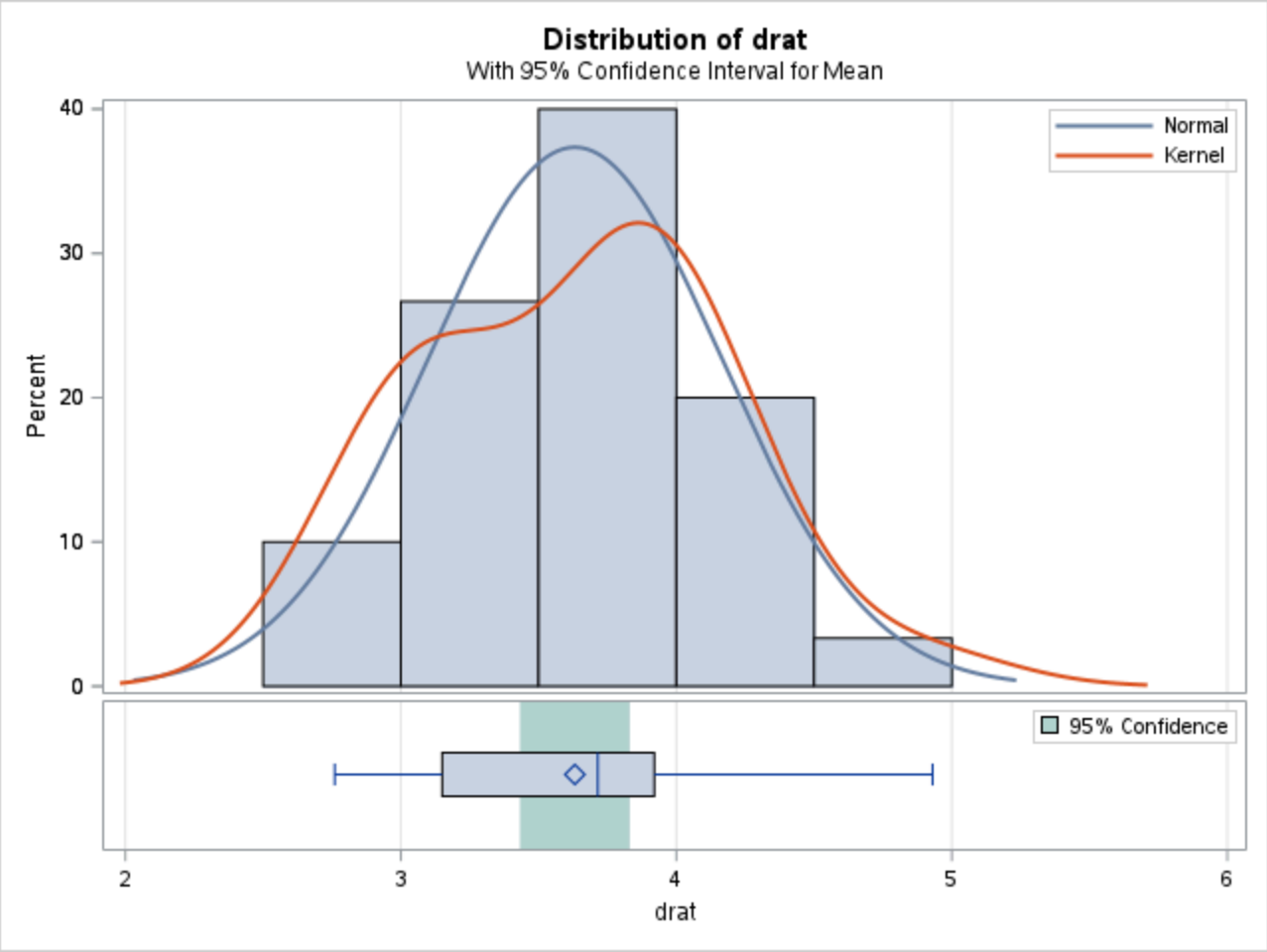


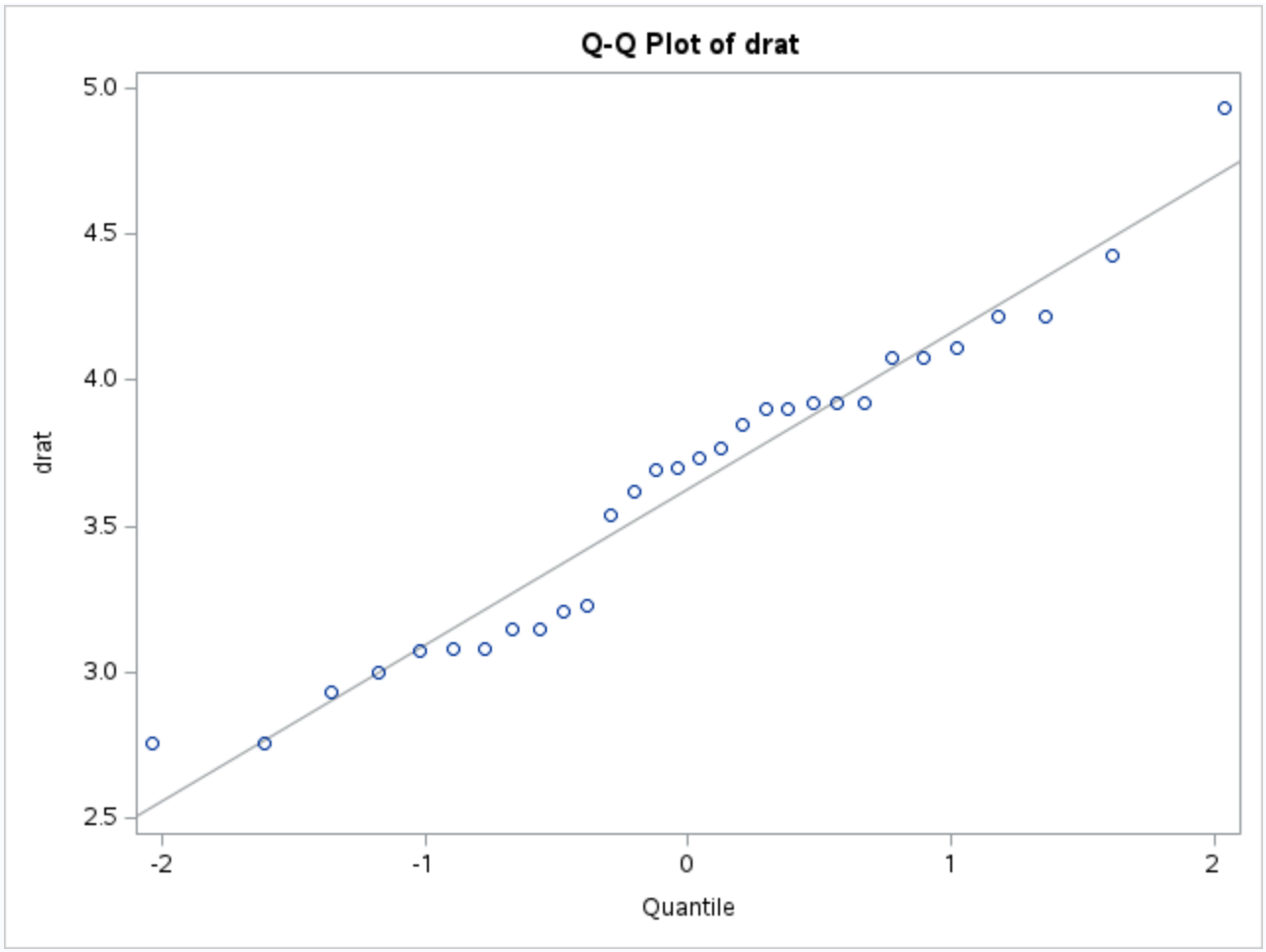
Variable: drat

N	Mean	Std Dev	Std Err	Minimum	Maximum
30	3.6317	0.5340	0.0975	2.7600	4.9300

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
3.6317	3.4323	3.8311	0.5340	0.4253	0.7179

DF	t Value	Pr > |t|
29	37.25	<.0001



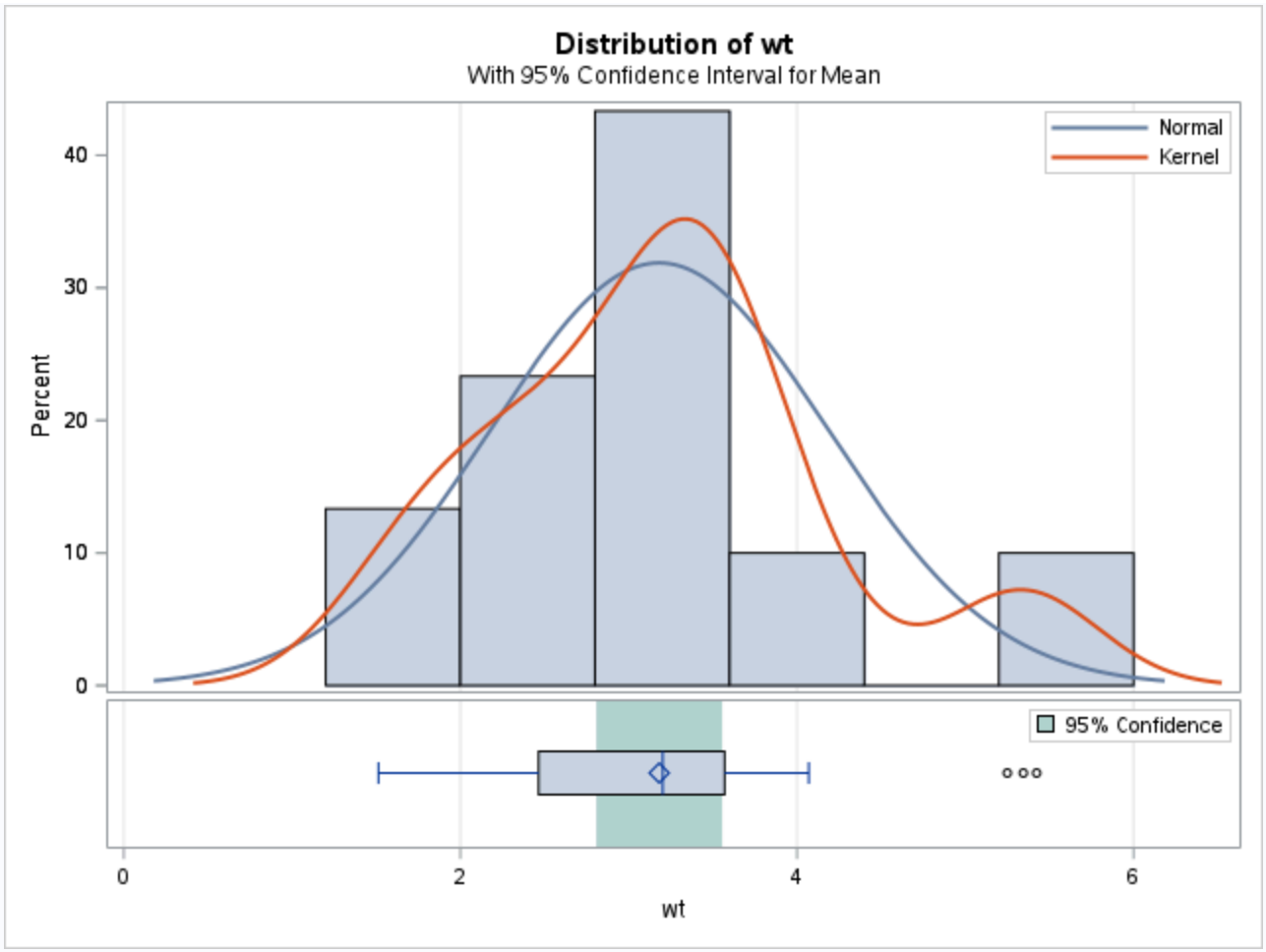


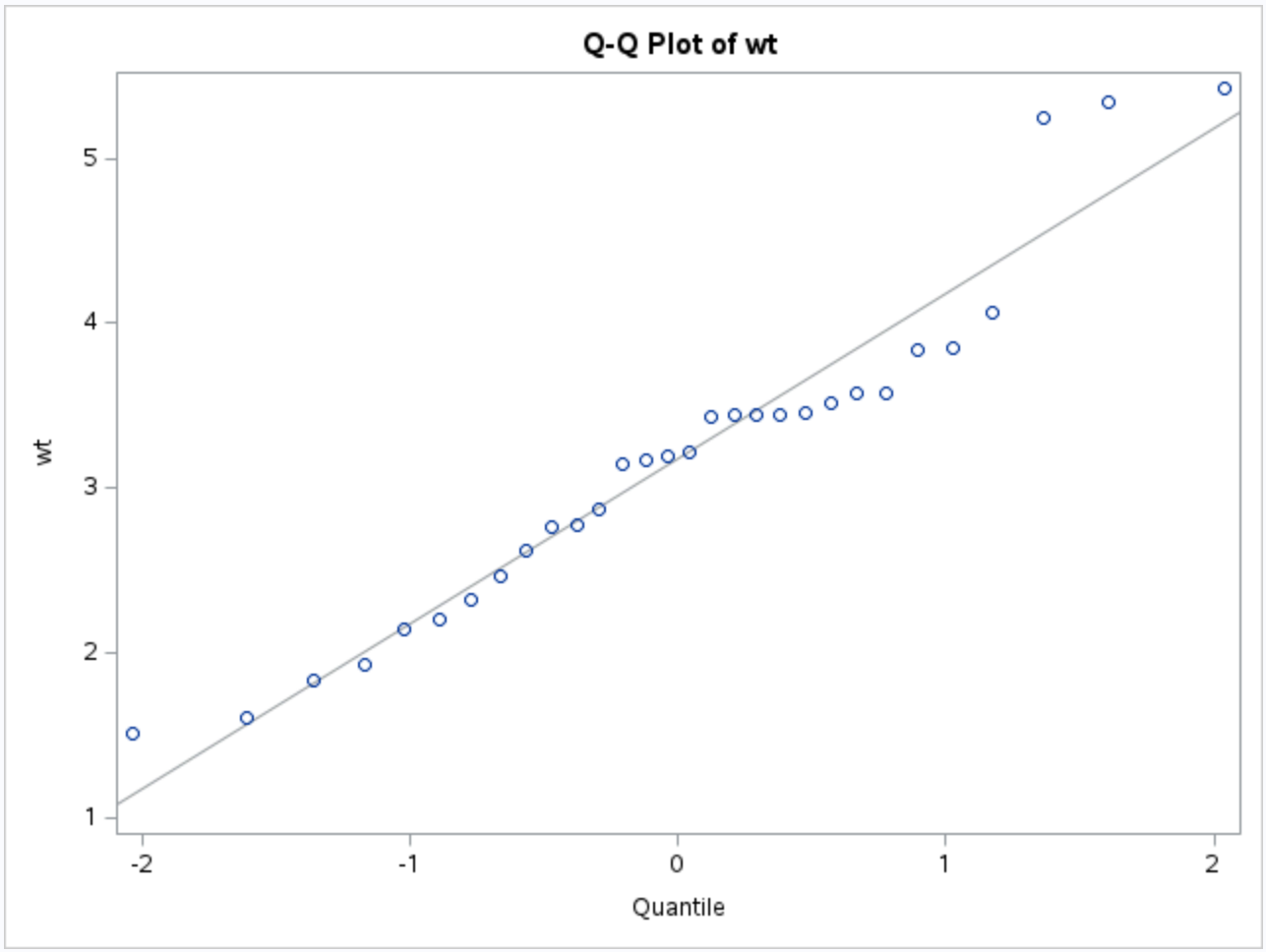
Variable: wt

N	Mean	Std Dev	Std Err	Minimum	Maximum
30	3.1814	1.0010	0.1828	1.5130	5.4240

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
3.1814	2.8076	3.5552	1.0010	0.7972	1.3457

DF	t Value	Pr > |t|
29	17.41	<.0001



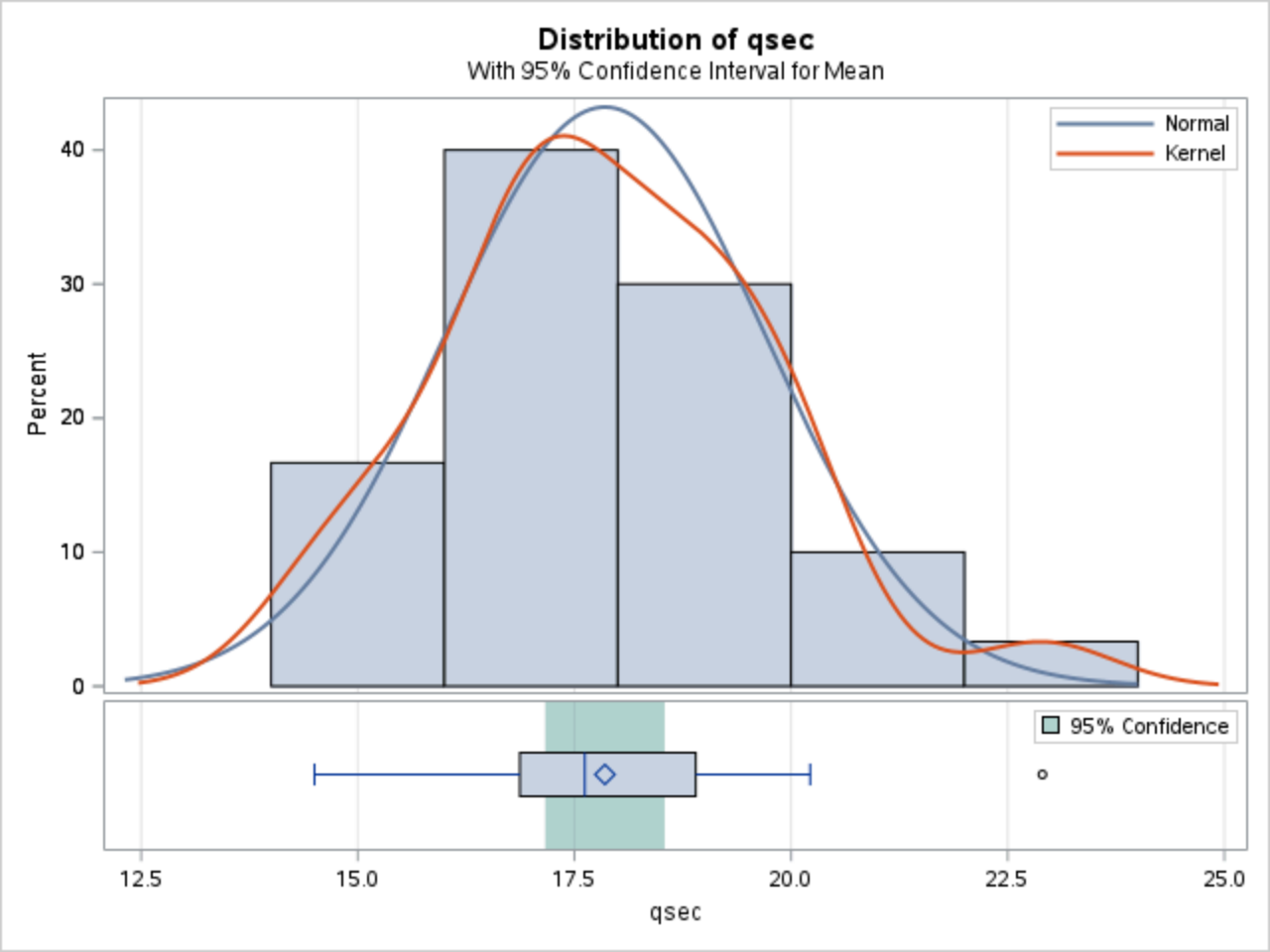


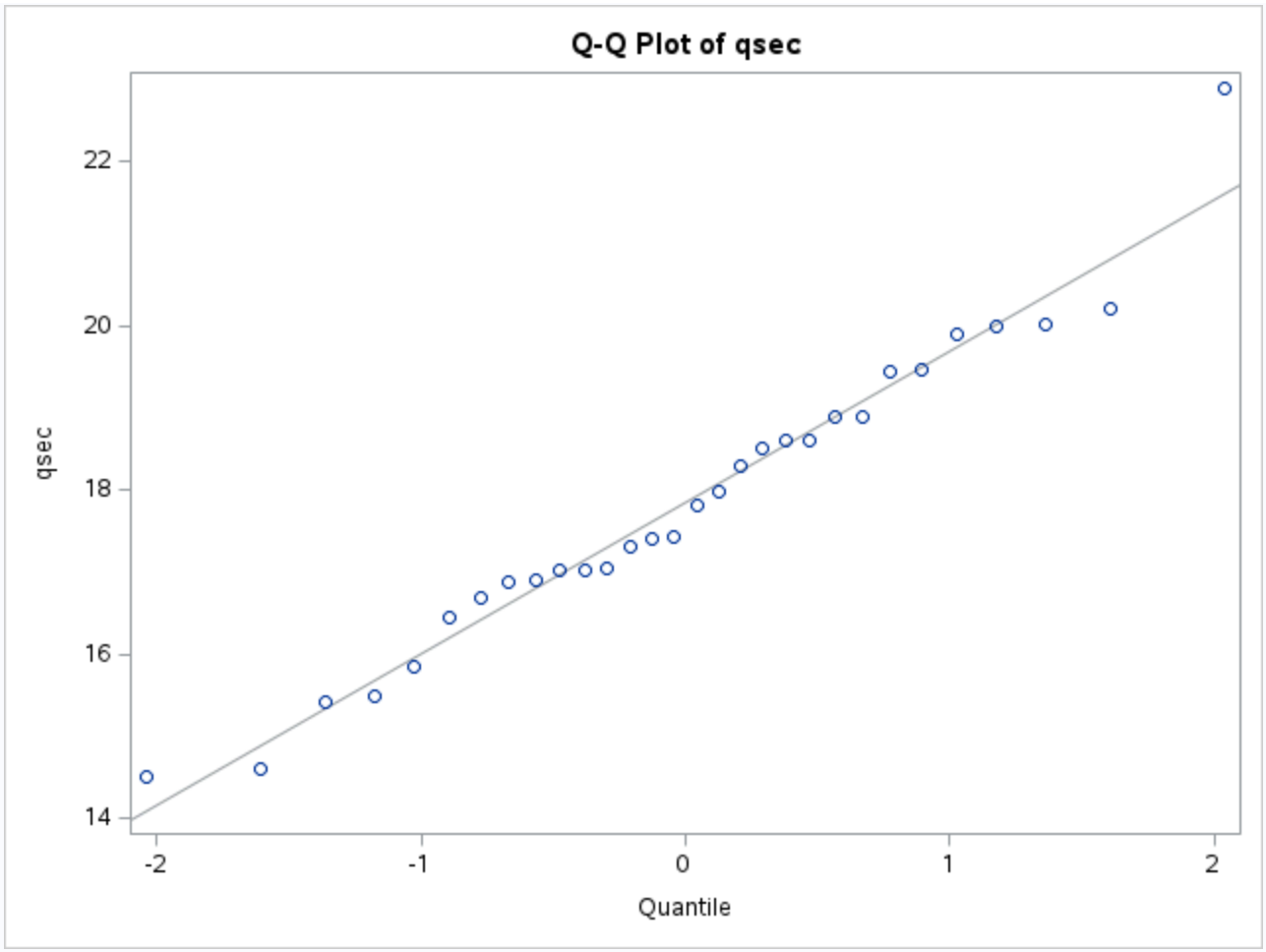
Variable: qsec

N	Mean	Std Dev	Std Err	Minimum	Maximum
30	17.8520	1.8467	0.3372	14.5000	22.9000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
17.8520	17.1624	18.5416	1.8467	1.4708	2.4826

DF	t Value	Pr > |t|
29	52.95	<.0001



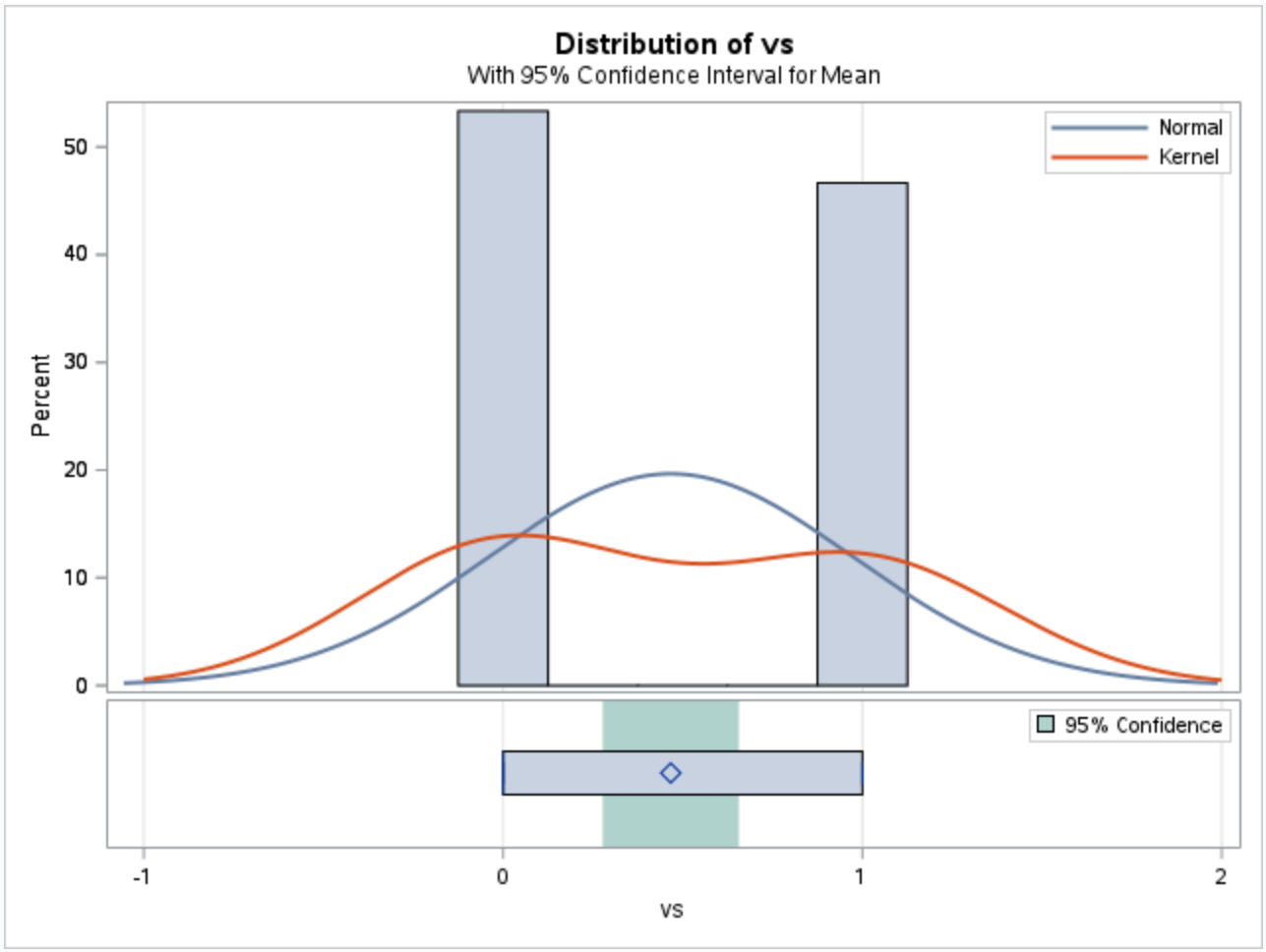


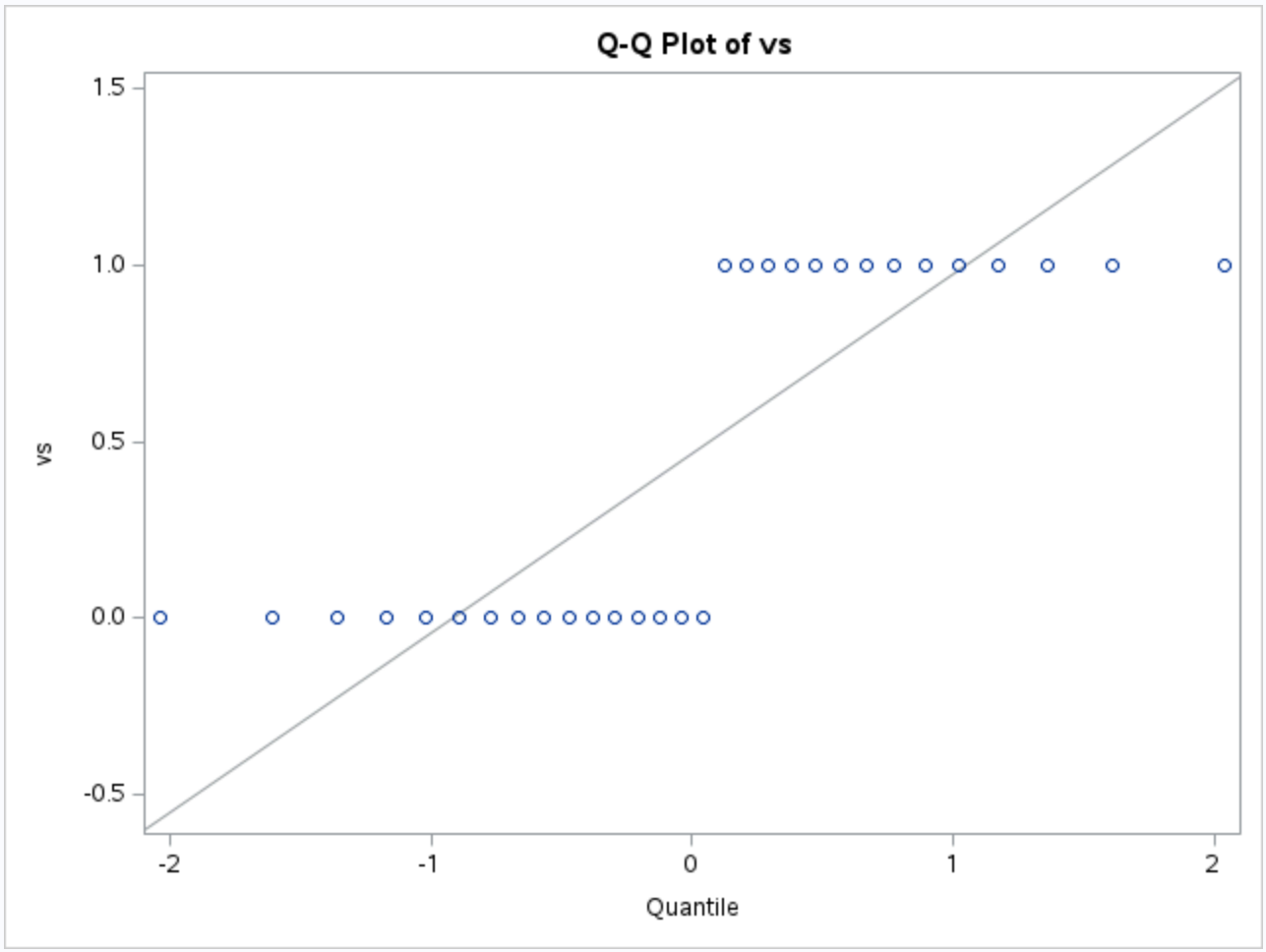
Variable: vs

N	Mean	Std Dev	Std Err	Minimum	Maximum
30	0.4667	0.5074	0.0926	0	1.0000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
0.4667	0.2772	0.6561	0.5074	0.4041	0.6821

DF	t Value	Pr > |t|
29	5.04	<.0001


Distribution of vs
With 95% Confidence Interval for Mean
Normal
Kernel
95% Confidence
Percent
50
40
30
20
10
0
-1
0
1
2
vs

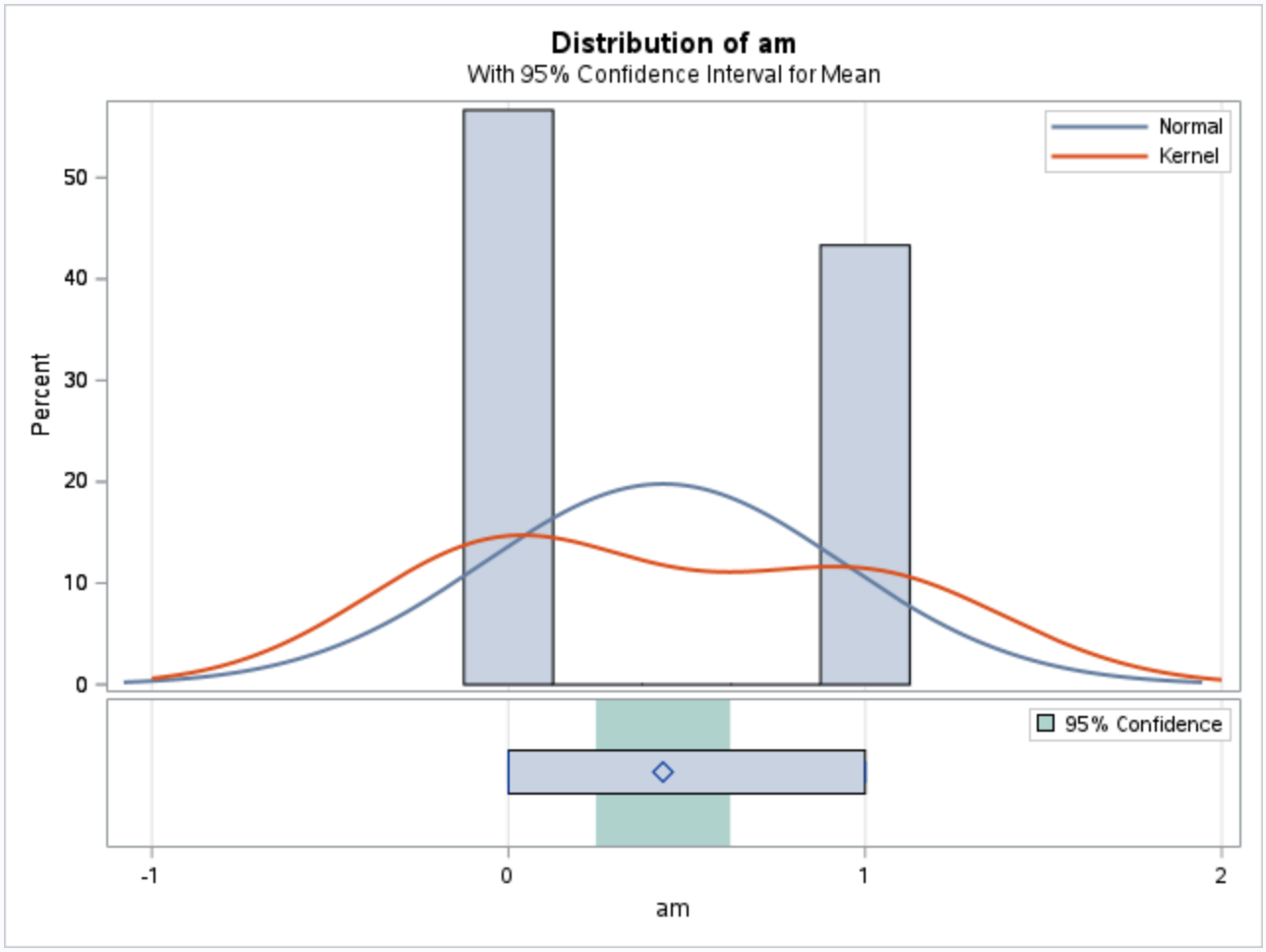

Q-Q Plot of vs
vs
1.5
1.0
0.5
0.0
-0.5
-2
-1
0
1
2
Quantile

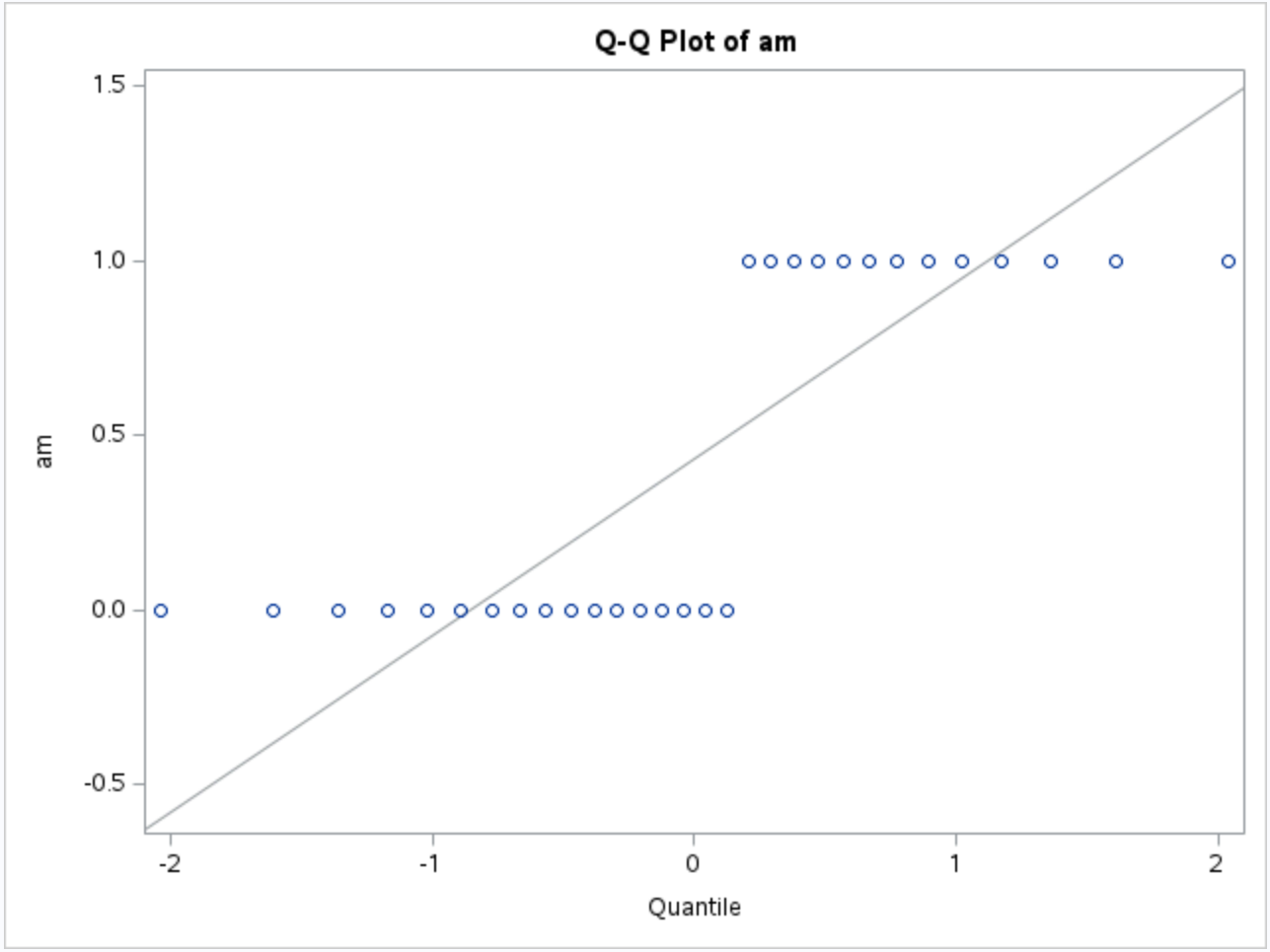
Variable: am

N	Mean	Std Dev	Std Err	Minimum	Maximum
30	0.4333	0.5040	0.0920	0	1.0000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
0.4333	0.2451	0.6215	0.5040	0.4014	0.6775

DF	t Value	Pr > |t|
29	4.71	<.0001



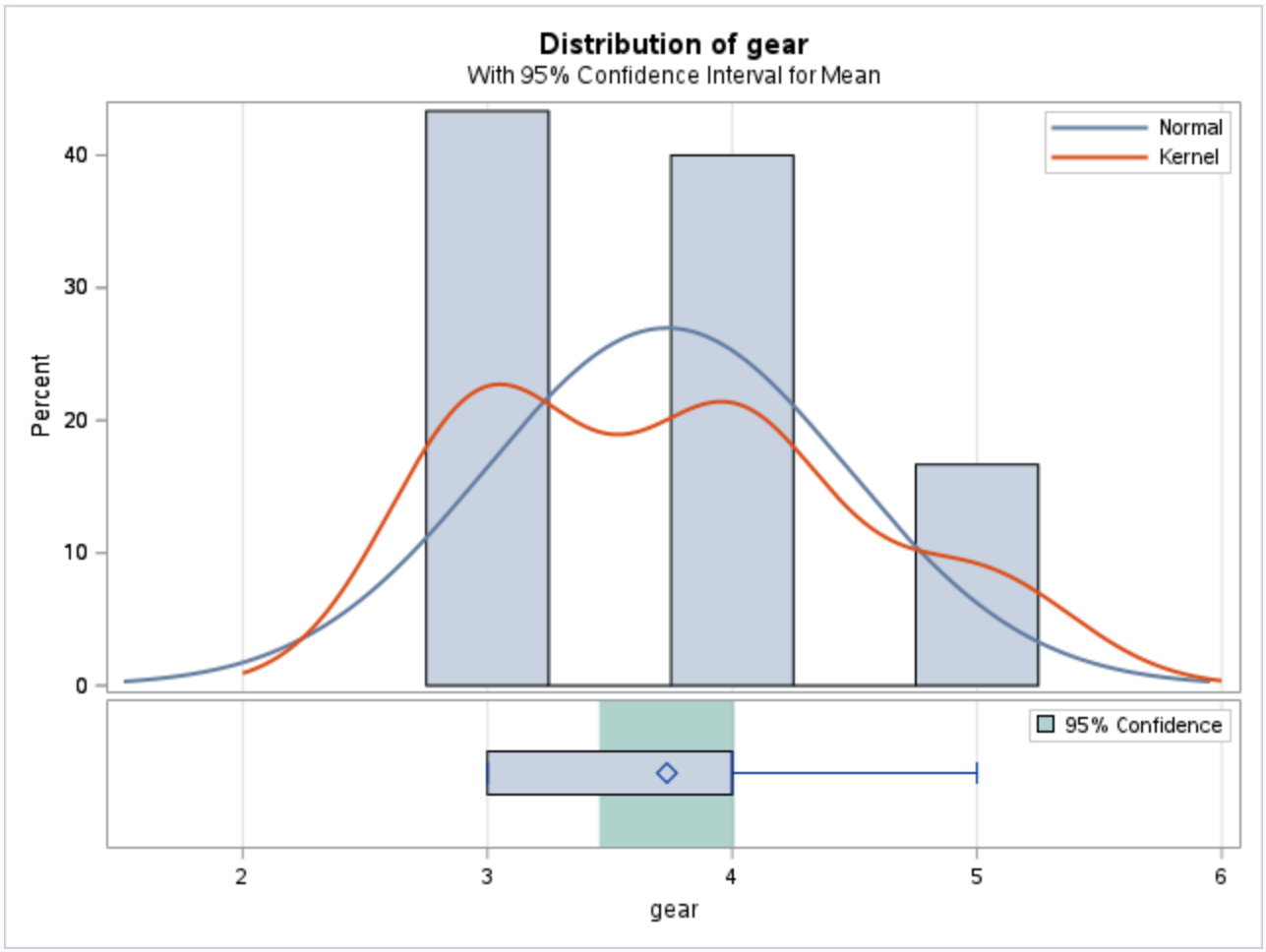


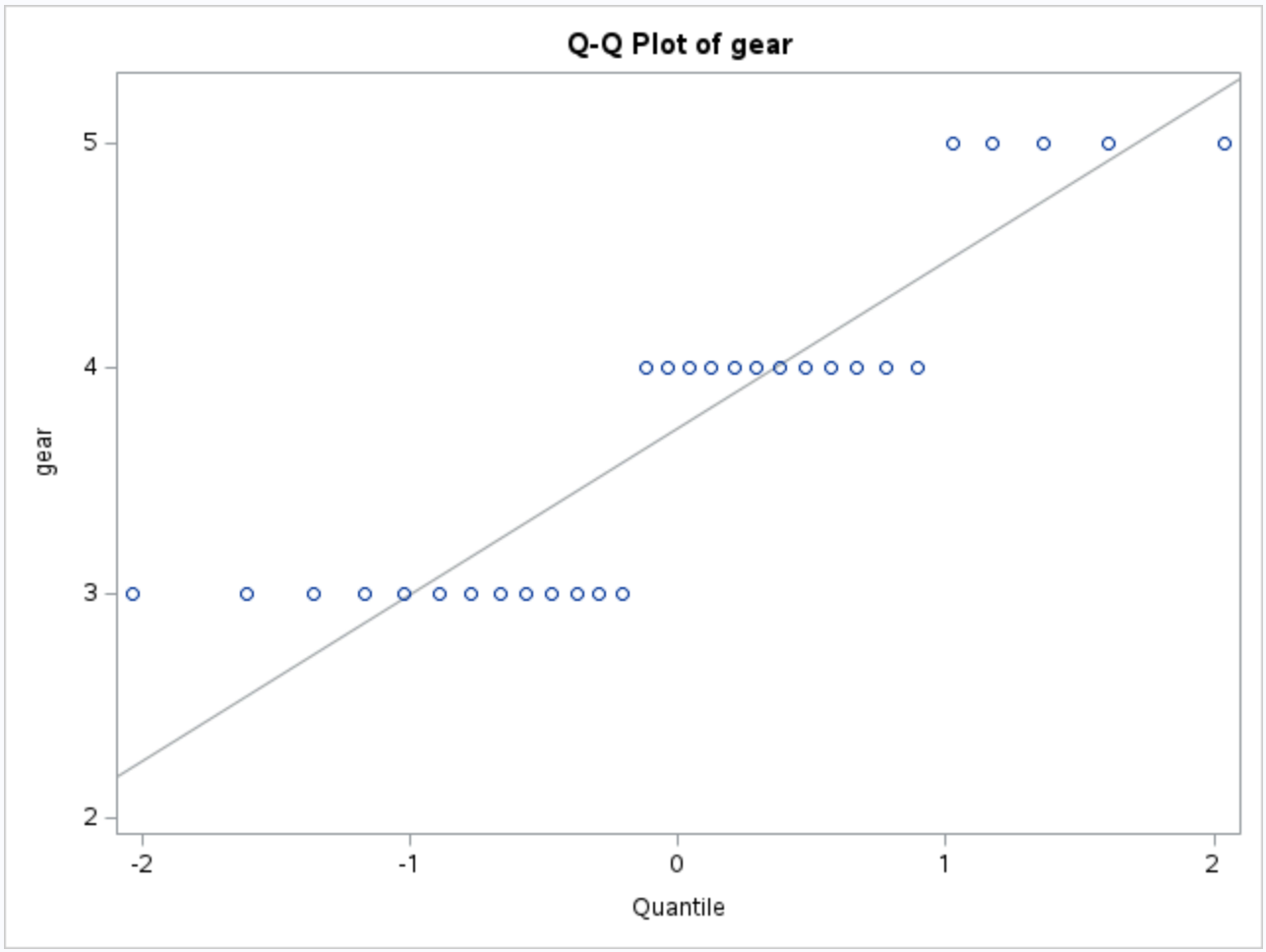
Variable: gear

N	Mean	Std Dev	Std Err	Minimum	Maximum
30	3.7333	0.7397	0.1350	3.0000	5.0000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
3.7333	3.4571	4.0095	0.7397	0.5891	0.9944

DF	t Value	Pr > |t|
29	27.64	<.0001



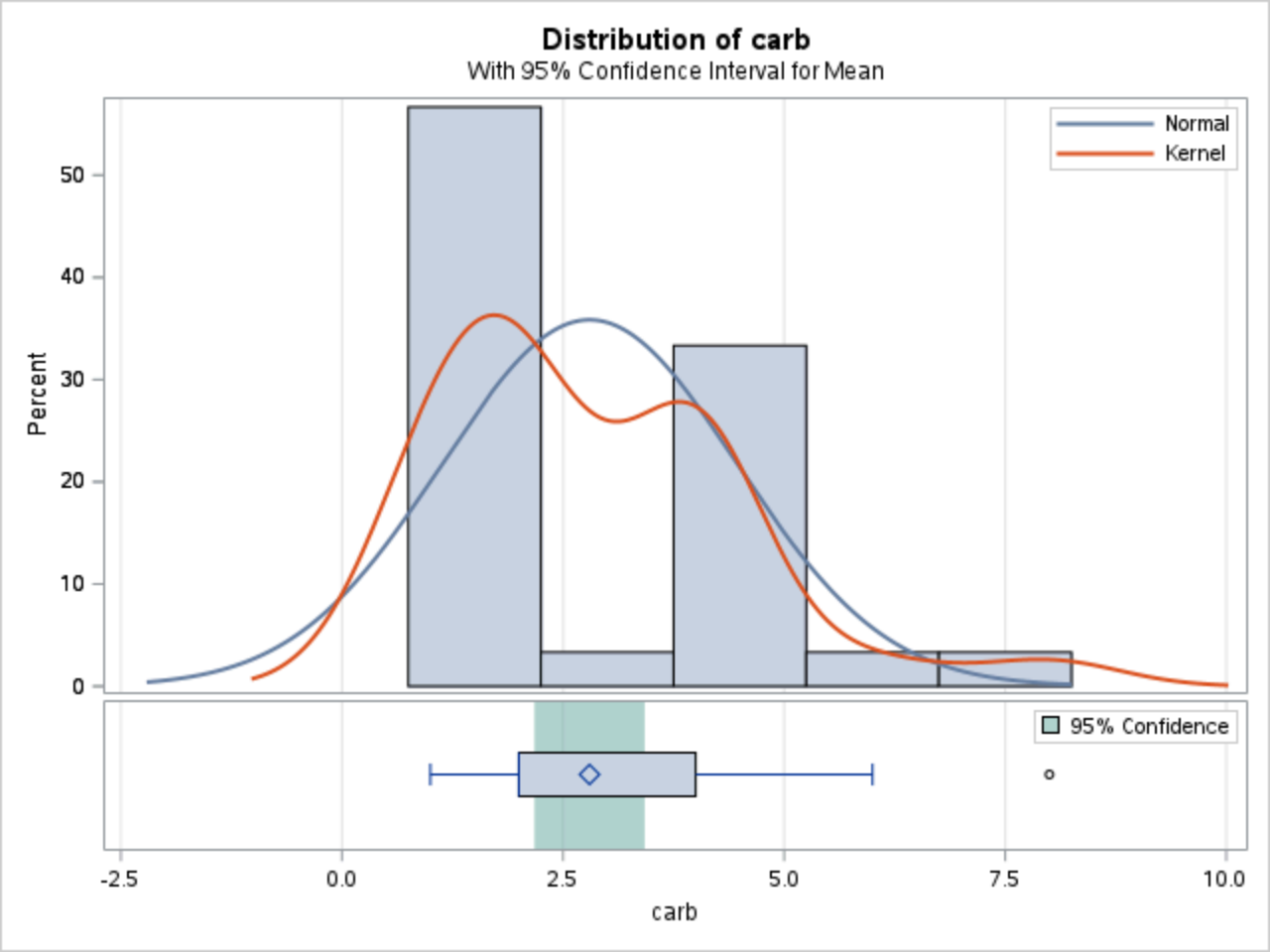


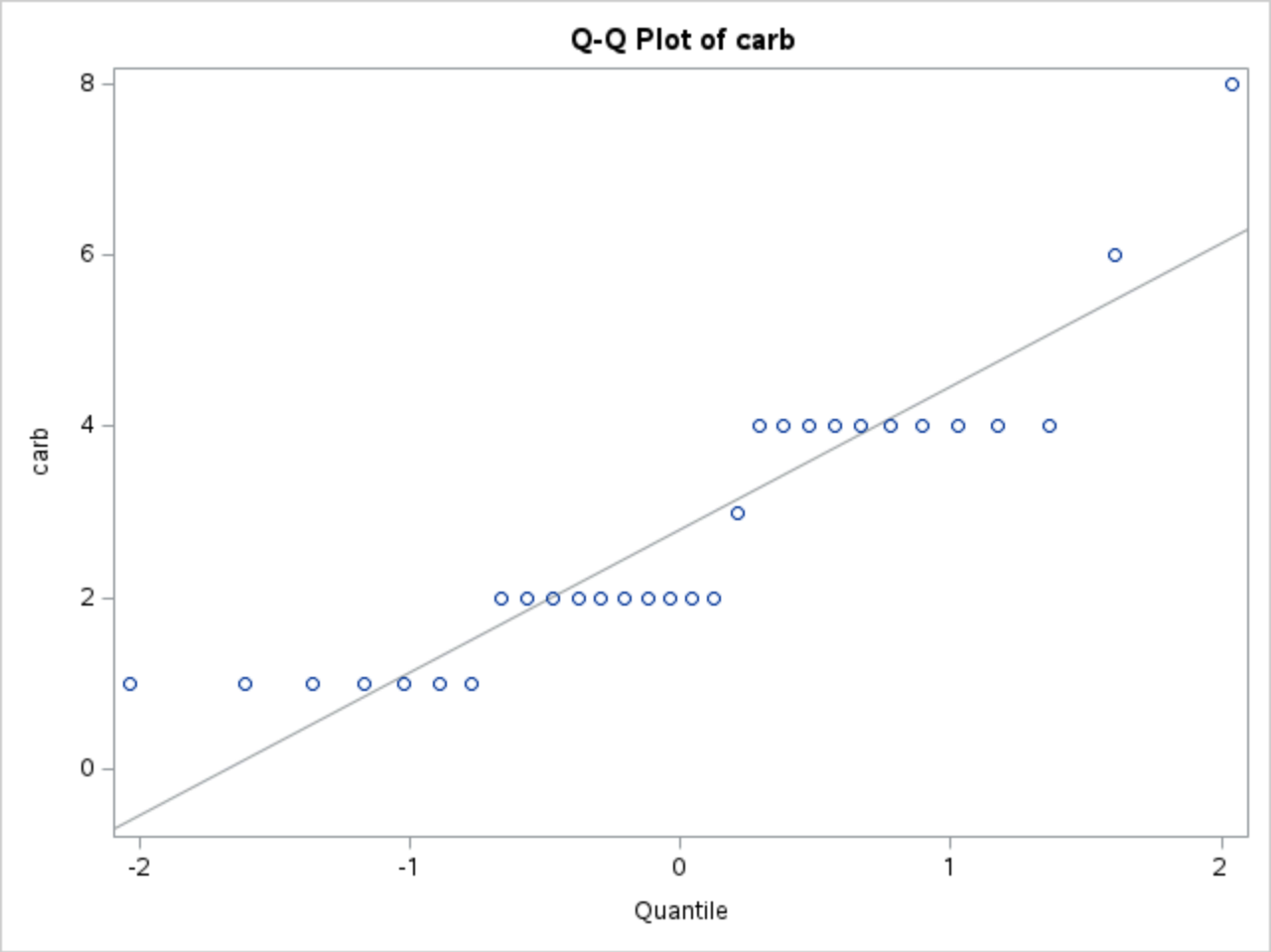
Variable: carb

N	Mean	Std Dev	Std Err	Minimum	Maximum
30	2.8000	1.6692	0.3048	1.0000	8.0000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
2.8000	2.1767	3.4233	1.6692	1.3294	2.2439

DF	t Value	Pr > |t|
29	9.19	<.0001





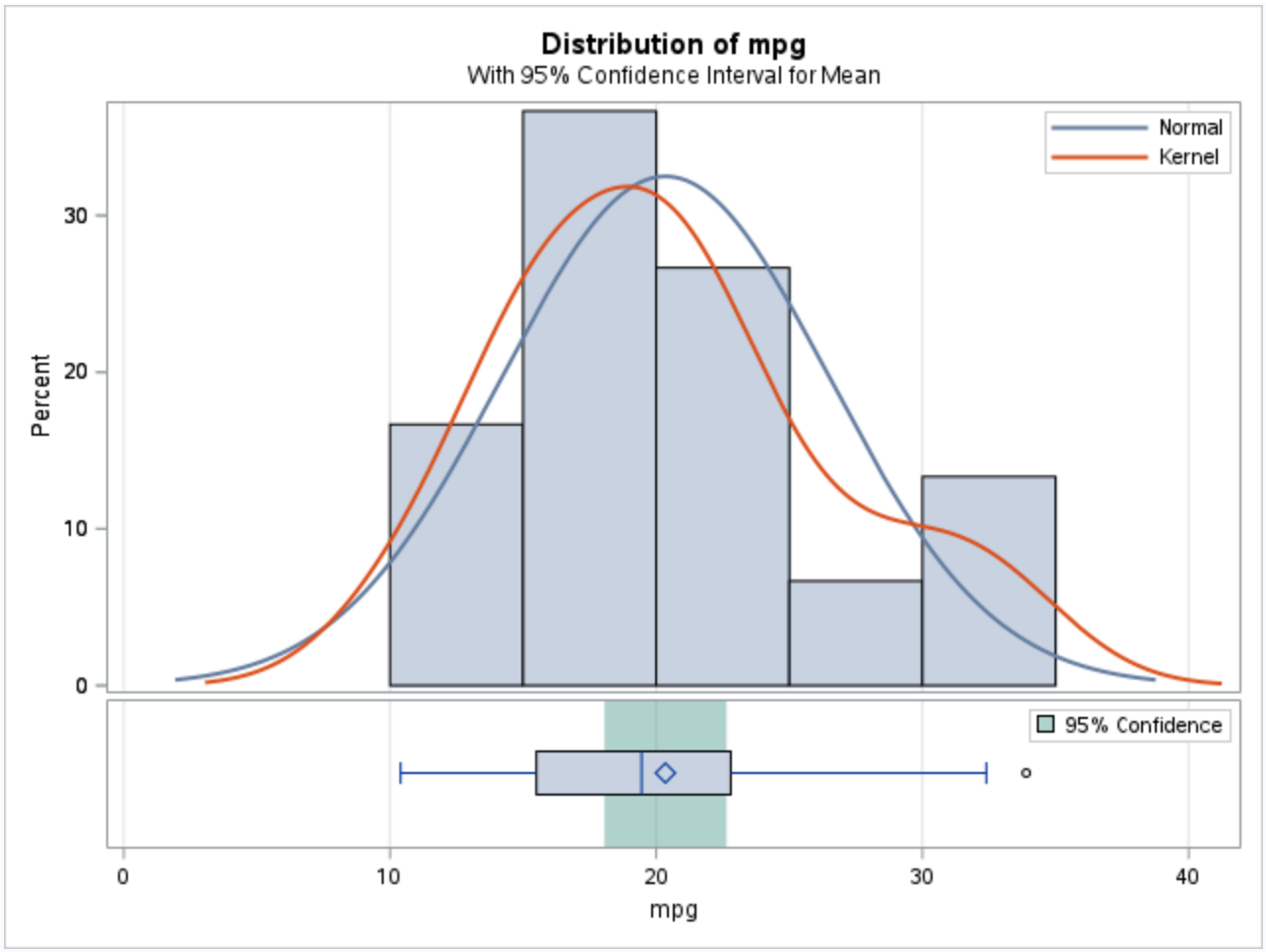
The TTEST Procedure

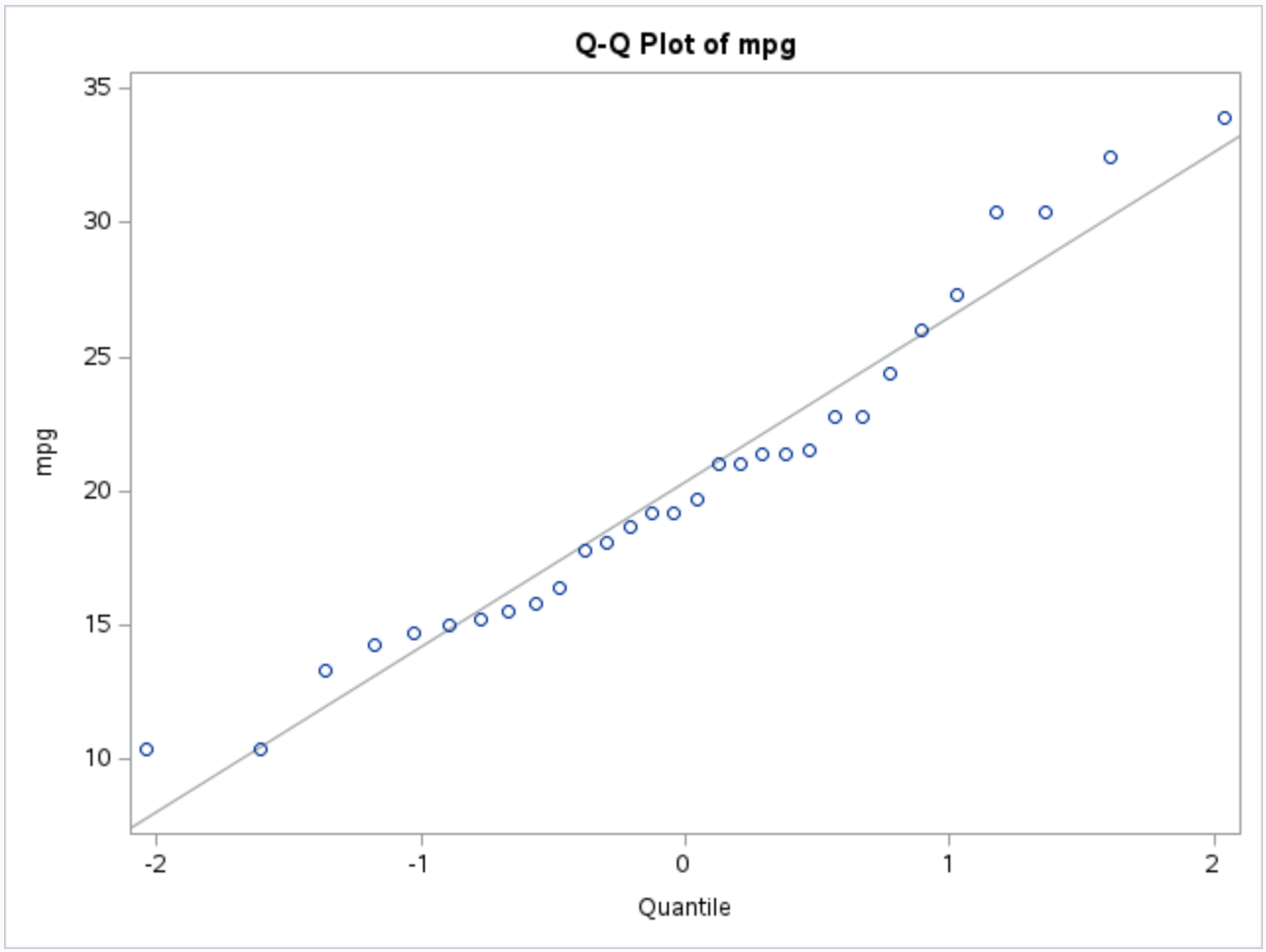
Variable: mpg

N	Mean	Std Dev	Std Err	Minimum	Maximum
30	20.3467	6.1374	1.1205	10.4000	33.9000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
20.3467	18.0549	22.6384	6.1374	4.8879	8.2506

DF	t Value	Pr > |t|
29	18.16	<.0001


Distribution of mpg
With 95% Confidence Interval for Mean
Normal
Kernel
Percent
30
20
10
0
95% Confidence
0
10
20
30
40
mpg


Q-Q Plot of mpg
35
30
25
20
15
10
mpg
-2
-1
0
1
2
Quantile

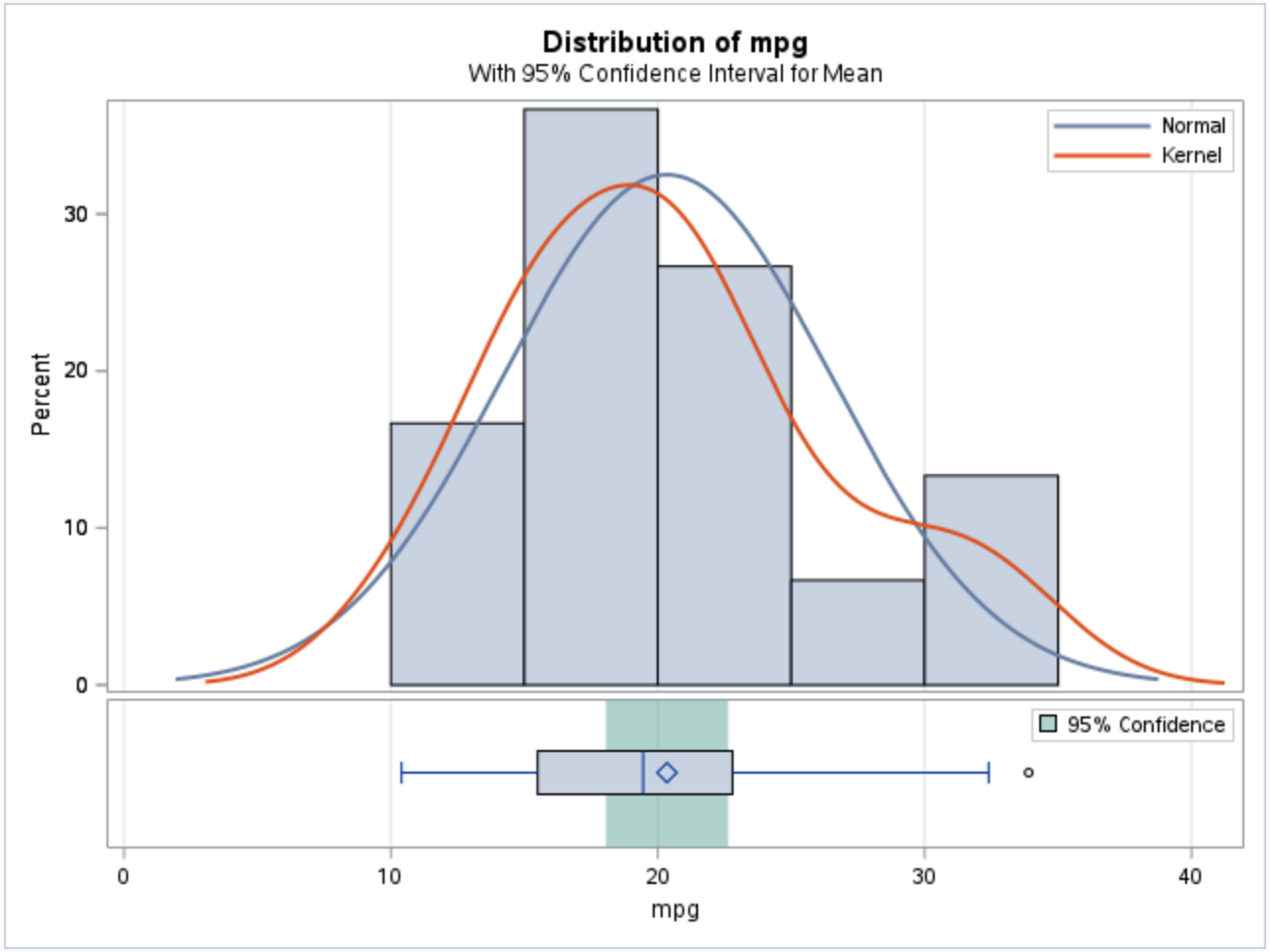
The TTEST Procedure

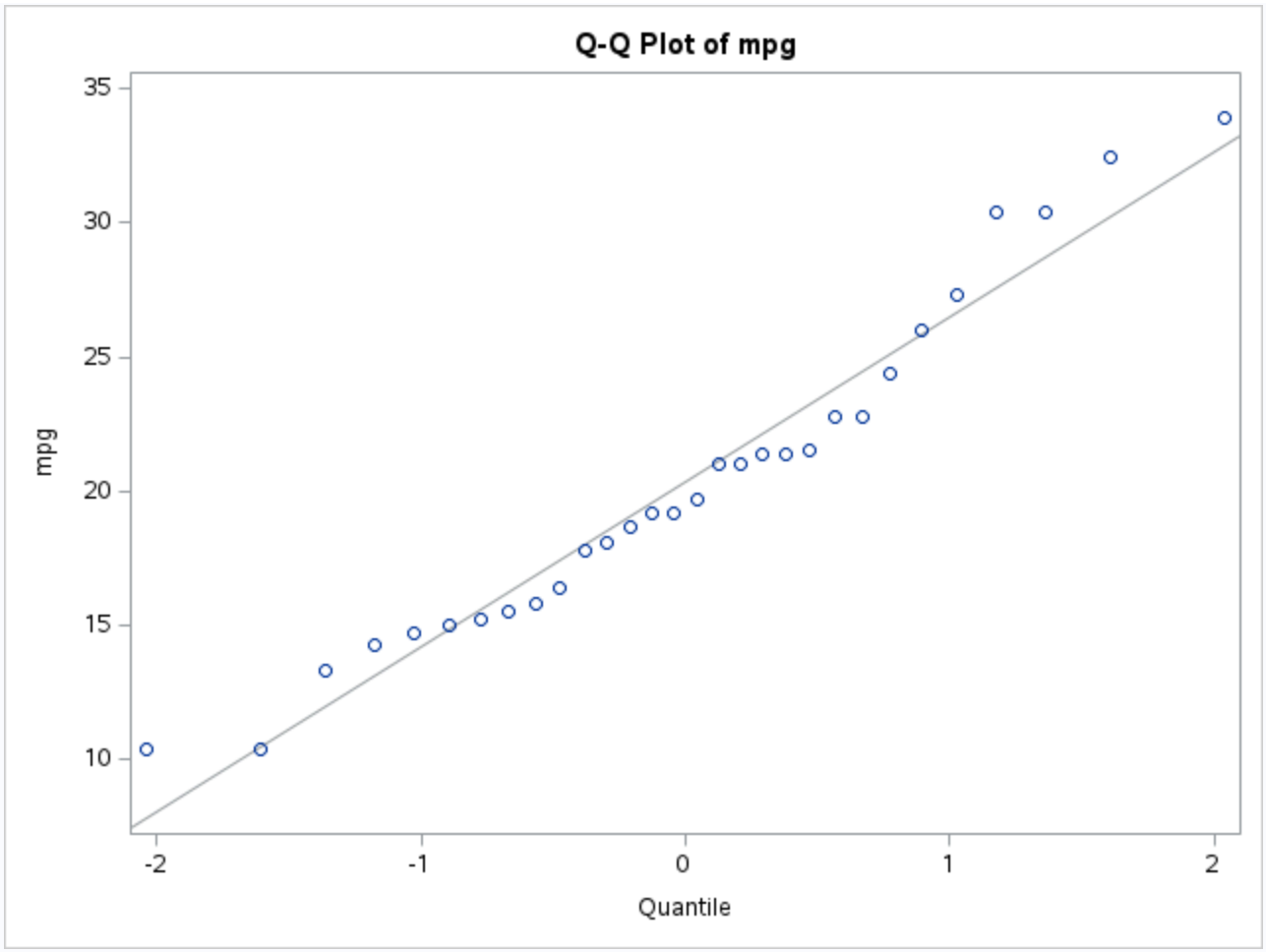
Variable: mpg

N	Mean	Std Dev	Std Err	Minimum	Maximum
30	20.3467	6.1374	1.1205	10.4000	33.9000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
20.3467	18.0549	22.6384	6.1374	4.8879	8.2506

DF	t Value	Pr > |t|
29	2.09	0.0451





The TTEST Procedure

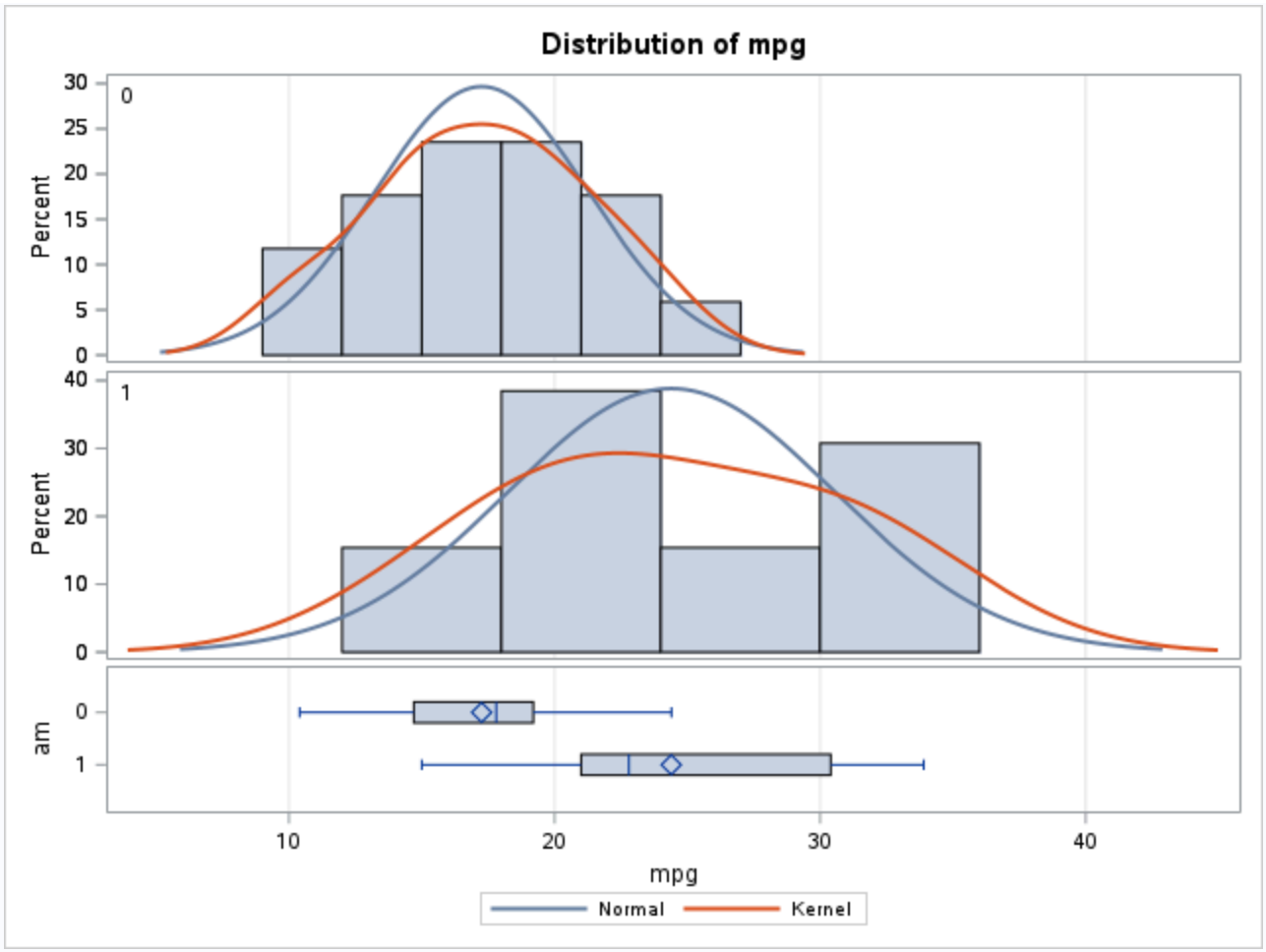
Variable: mpg

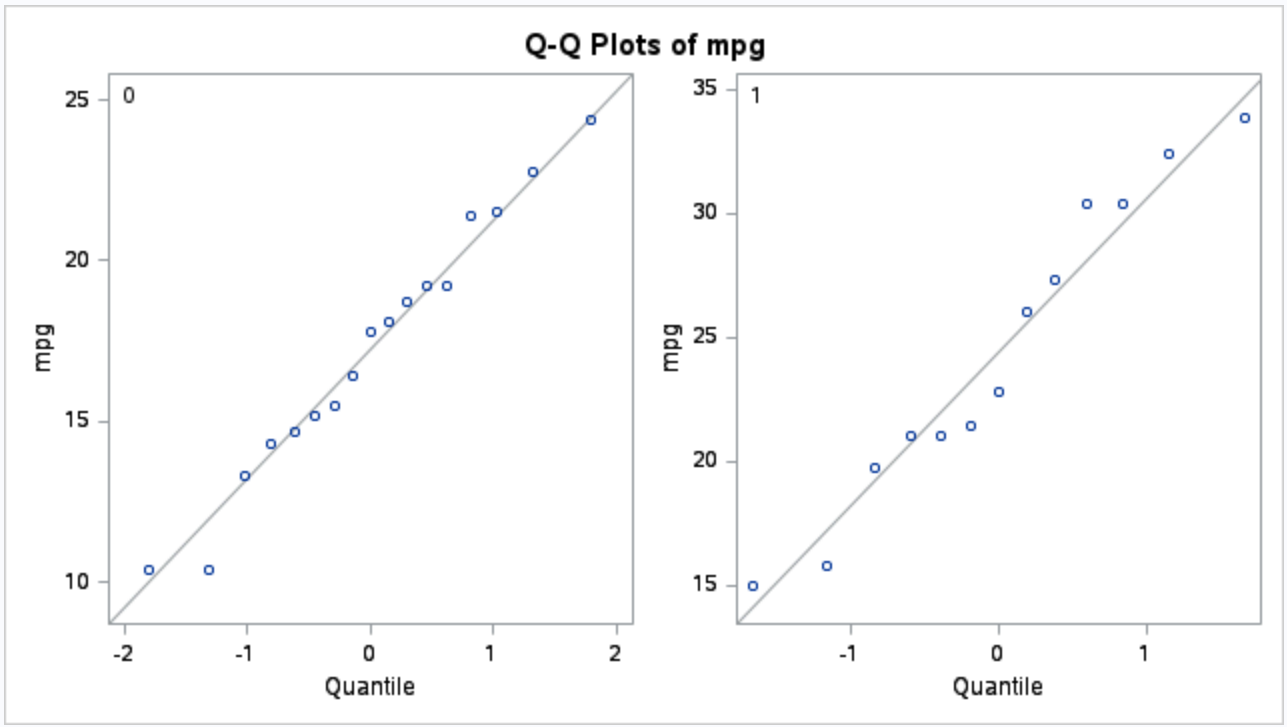
am	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
0		17	17.2529	4.0356	0.9788	10.4000	24.4000
1		13	24.3923	6.1665	1.7103	15.0000	33.9000
Diff (1-2)	Pooled		-7.1394	5.0600	1.8643		
Diff (1-2)	Satterthwaite		-7.1394		1.9706		

am	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
0		17.2529	15.1780	19.3279	4.0356	3.0056	6.1420
1		24.3923	20.6659	28.1187	6.1665	4.4219	10.1793
Diff (1-2)	Pooled	-7.1394	-10.9582	-3.3206	5.0600	4.0155	6.8434
Diff (1-2)	Satterthwaite	-7.1394	-11.2556	-3.0231			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	28	-3.83	0.0007
Satterthwaite	Unequal	19.573	-3.62	0.0017

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	12	16	2.33	0.1149





The FREQ Procedure

exposed	Frequency	Percent	Cumulative Frequency	Cumulative Percent
high	2	40.00	2	40.00

exposed	Frequency	Percent	Cumulative Frequency	Cumulative Percent
normal	3	60.00	5	100.00

The FREQ Procedure

Frequency Percent Row Pct Col Pct	Table of exposed by responses		
	responses		
exposed	no	yes	Total
high	2 40.00 100.00 50.00	0 0.00 0.00 0.00	2 40.00
normal	2 40.00 66.67 50.00	1 20.00 33.33 100.00	3 60.00
Total	4 80.00	1 20.00	5 100.00

The FREQ Procedure

Percent	Table of exposed by responses		
	responses		
exposed	no	yes	Total
high	40.00	0.00	40.00
normal	40.00	20.00	60.00
Total	4 80.00	1 20.00	5 100.00

The MEANS Procedure

Analysis Variable : mpg		
Kurtosis	Mean	Median
-0.1622887	20.3466667	19.4500000

The UNIVARIATE Procedure
Variable: mpg

Moments			
N	30	Sum Weights	30
Mean	20.3466667	Sum Observations	610.4
Std Deviation	6.13743366	Variance	37.668092
Skewness	0.57165722	Kurtosis	-0.1622887
Uncorrected SS	13511.98	Corrected SS	1092.37467
Coeff Variation	30.1643201	Std Error Mean	1.12053695

Basic Statistical Measures			
Location		Variability	
Mean	20.34667	Std Deviation	6.13743

Basic Statistical Measures			
Location		Variability	
Median	19.45000	Variance	37.66809
Mode	10.40000	Range	23.50000
		Interquartile Range	7.30000

Note: The mode displayed is the smallest of 6 modes with a count of 2.

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	18.15796	Pr > |t|	<.0001
Sign	M	15	Pr >= |M|	<.0001
Signed Rank	S	232.5	Pr >= |S|	<.0001

Quantiles (Definition 5)	
Level	Quantile
100% Max	33.90
99%	33.90
95%	32.40
90%	30.40
75% Q3	22.80
50% Median	19.45
25% Q1	15.50
10%	13.80
5%	10.40
1%	10.40
0% Min	10.40

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
10.4	14	27.3	24
10.4	13	30.4	17
13.3	22	30.4	26
14.3	7	32.4	16
14.7	15	33.9	18

The UNIVARIATE Procedure
Variable: mpg

Moments			
N	30	Sum Weights	30
Mean	20.3466667	Sum Observations	610.4
Std Deviation	6.13743366	Variance	37.668092
Skewness	0.57165722	Kurtosis	-0.1622887
Uncorrected SS	13511.98	Corrected SS	1092.37467
Coeff Variation	30.1643201	Std Error Mean	1.12053695

Basic Statistical Measures			
Location		Variability	
Mean	20.34667	Std Deviation	6.13743
Median	19.45000	Variance	37.66809

Basic Statistical Measures			
Location		Variability	
Mode	10.40000	Range	23.50000
		Interquartile Range	7.30000

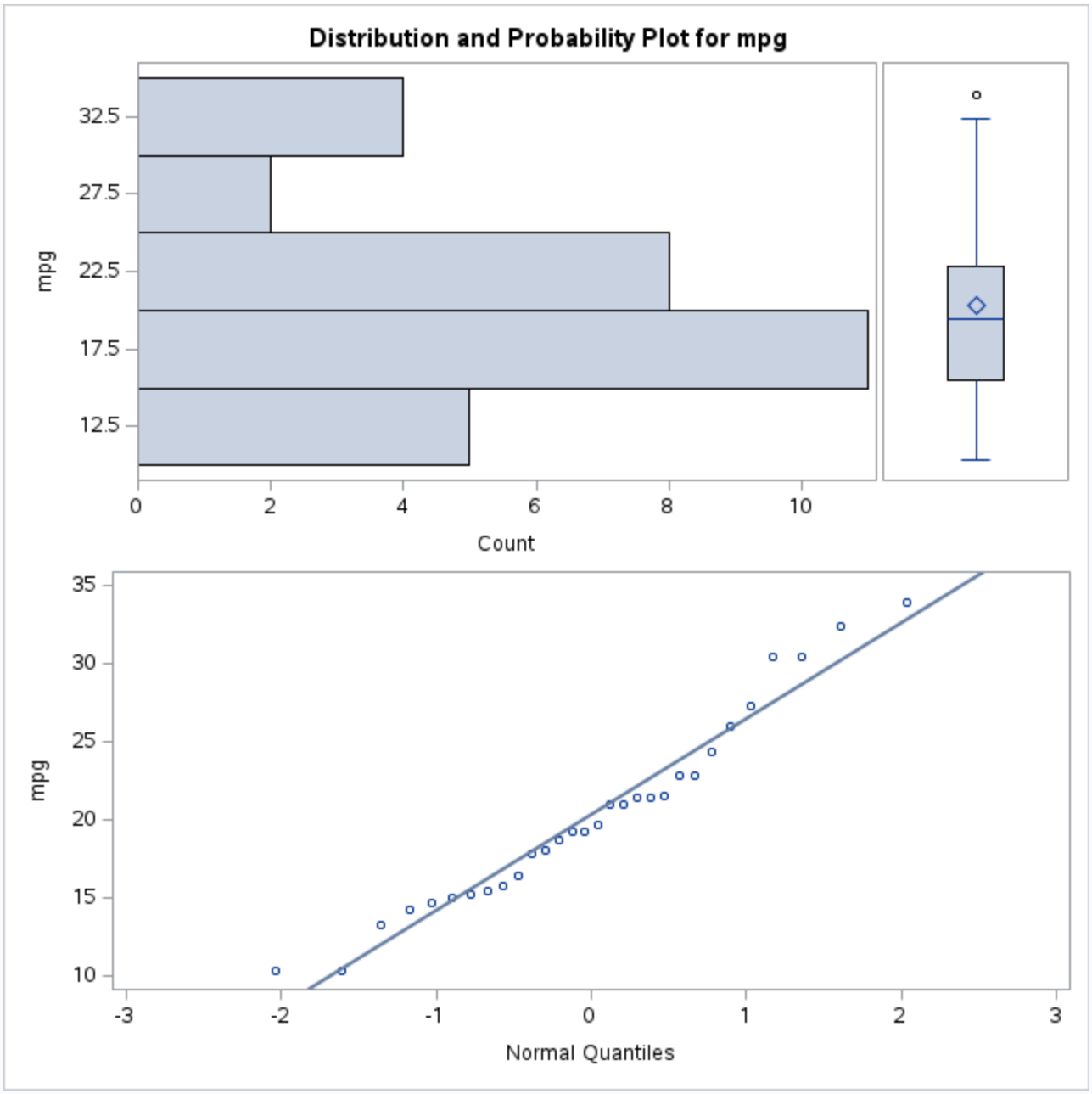
Note: The mode displayed is the smallest of 6 modes with a count of 2.

Tests for Location: Mu0=18				
Test	Statistic		p Value	
Student's t	t	2.094234	Pr > |t|	0.0451
Sign	M	4	Pr >= |M|	0.2005
Signed Rank	S	87.5	Pr >= |S|	0.0710

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.955398	Pr < W	0.2353
Kolmogorov-Smirnov	D	0.125471	Pr > D	>0.1500
Cramer-von Mises	W-Sq	0.068372	Pr > W-Sq	>0.2500
Anderson-Darling	A-Sq	0.455385	Pr > A-Sq	>0.2500

Quantiles (Definition 5)	
Level	Quantile
100% Max	33.90
99%	33.90
95%	32.40
90%	30.40
75% Q3	22.80
50% Median	19.45
25% Q1	15.50
10%	13.80
5%	10.40
1%	10.40
0% Min	10.40

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
10.4	14	27.3	24
10.4	13	30.4	17
13.3	22	30.4	26
14.3	7	32.4	16
14.7	15	33.9	18



The TTEST Procedure

Variable: mpg

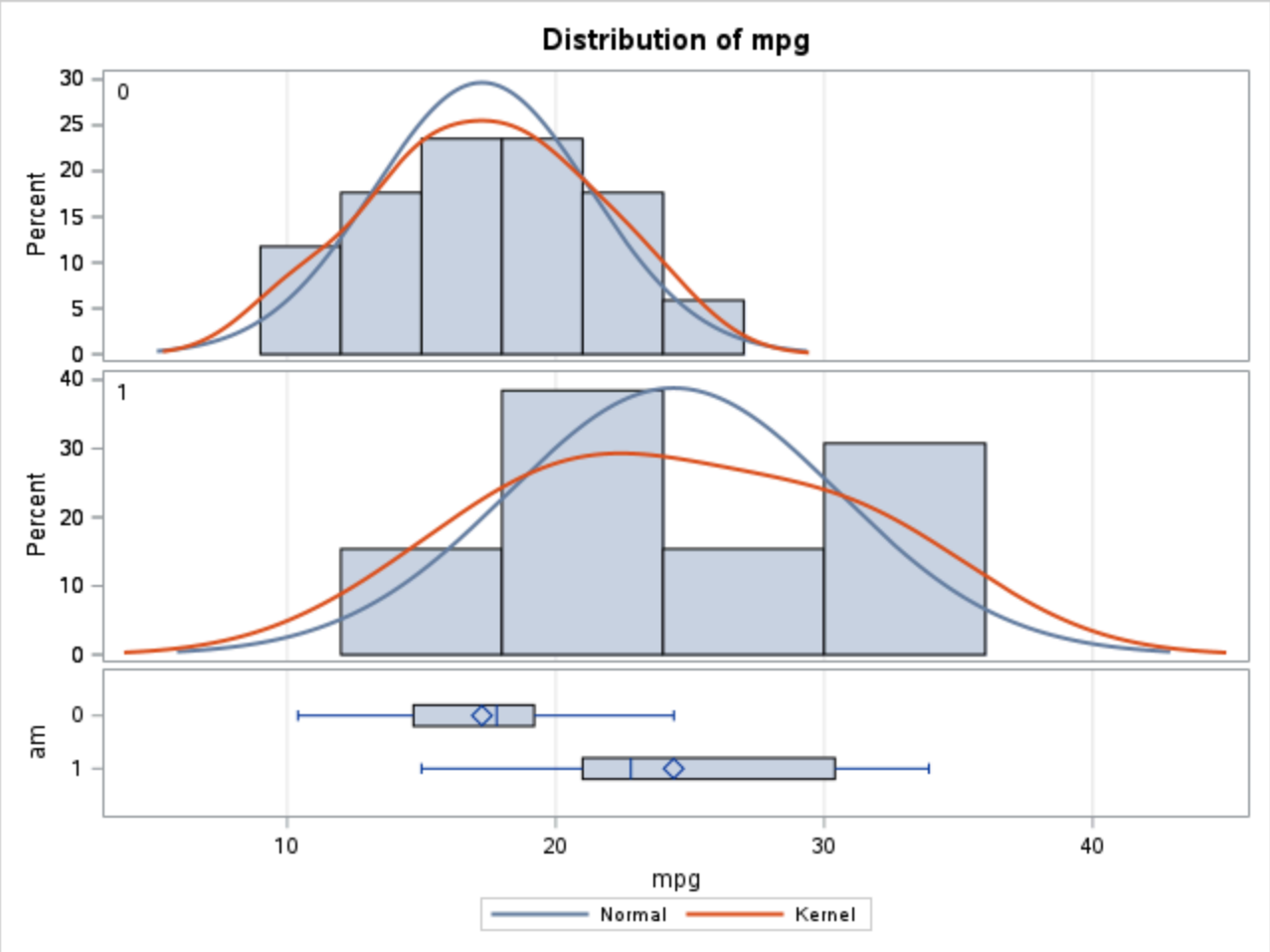
am	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
0		17	17.2529	4.0356	0.9788	10.4000	24.4000
1		13	24.3923	6.1665	1.7103	15.0000	33.9000
Diff (1-2)	Pooled		-7.1394	5.0600	1.8643		
Diff (1-2)	Satterthwaite		-7.1394		1.9706		

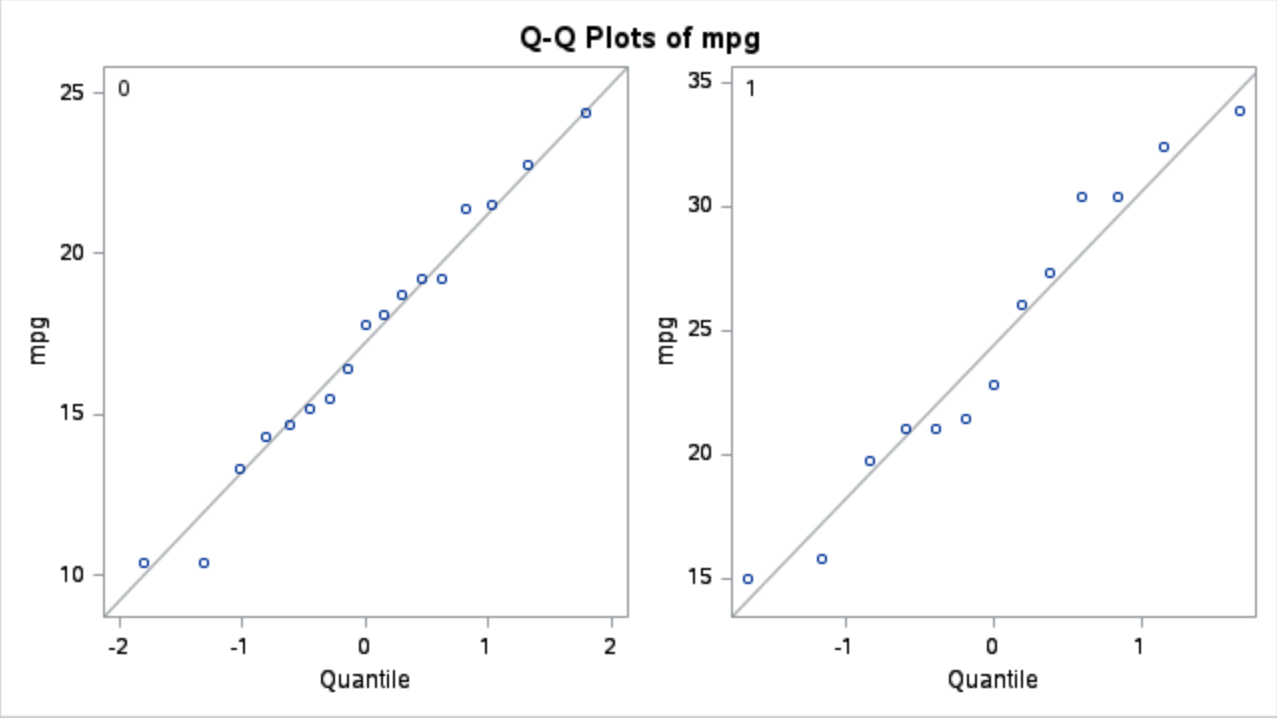
am	Method	Mean	99% CL Mean		Std Dev	99% CL Std Dev	
0		17.2529	14.3941	20.1118	4.0356	2.7576	7.1187
1		24.3923	19.1682	29.6164	6.1665	4.0155	12.1840
Diff (1-2)	Pooled	-7.1394	-12.2909	-1.9879	5.0600	3.7495	7.5848
Diff (1-2)	Satterthwaite	-7.1394	-12.7590	-1.5198			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	28	-3.83	0.0007

Method	Variances	DF	t Value	Pr > |t|
Satterthwaite	Unequal	19.573	-3.62	0.0017

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	12	16	2.33	0.1149





The REG Procedure
Model: MODEL1
Dependent Variable: mpg

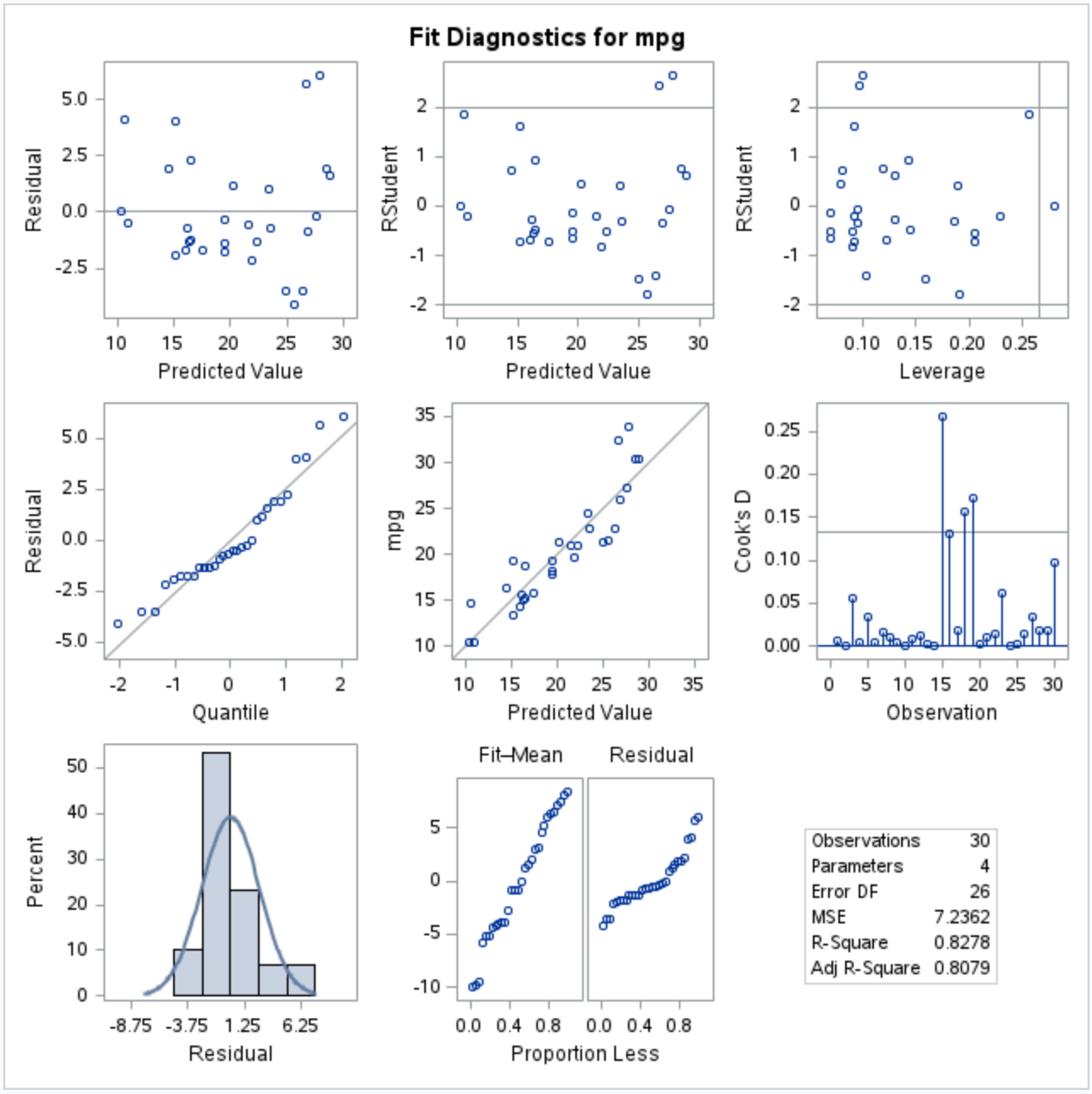
Number of Observations Read	30
Number of Observations Used	30

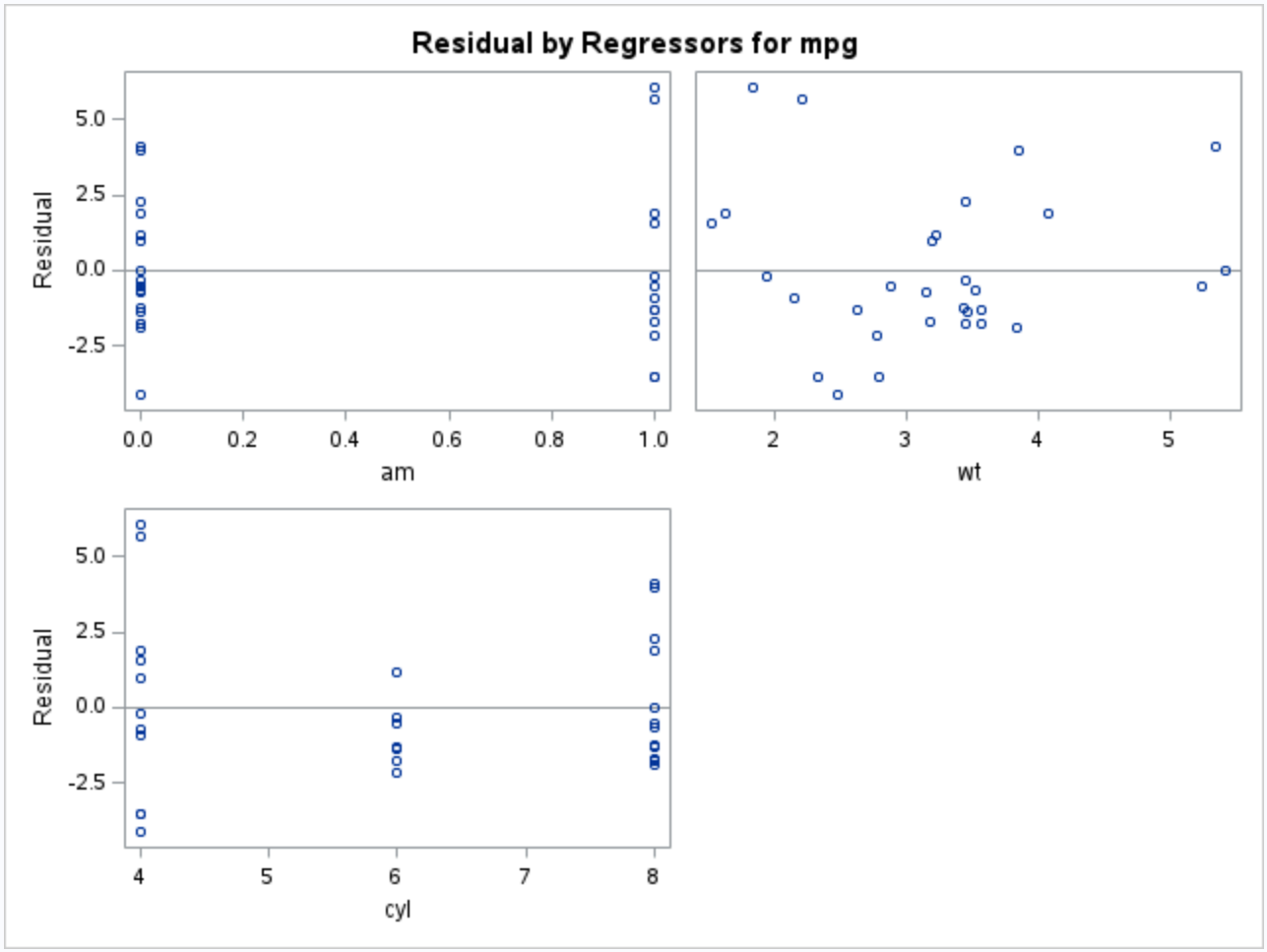
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	904.23263	301.41088	41.65	<.0001
Error	26	188.14204	7.23623		
Corrected Total	29	1092.37467			

Root MSE	2.69002	R-Square	0.8278
Dependent Mean	20.34667	Adj R-Sq	0.8079
Coeff Var	13.22096		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	39.38199	2.72124	14.47	<.0001
am	1	0.27084	1.36462	0.20	0.8442
wt	1	-3.05328	0.95450	-3.20	0.0036
cyl	1	-1.55588	0.45030	-3.46	0.0019

The REG Procedure
Model: MODEL1
Dependent Variable: mpg


Fit Diagnostics for mpg
Residual
Predicted Value
RStudent
Predicted Value
RStudent
Leverage
Residual
Quantile
mpg
Predicted Value
Cook's D
Observation
Percent
Residual
Fit–Mean
Residual
Proportion Less
Observations 30
Parameters 4
Error DF 26
MSE 7.2362
R-Square 0.8278
Adj R-Square 0.8079


Residual by Regressors for mpg
Residual
5.0
2.5
0.0
-2.5
0.0
0.2
0.4
0.6
0.8
1.0
am
2
3
4
5
wt
Residual
5.0
2.5
0.0
-2.5
4
5
6
7
8
cyl