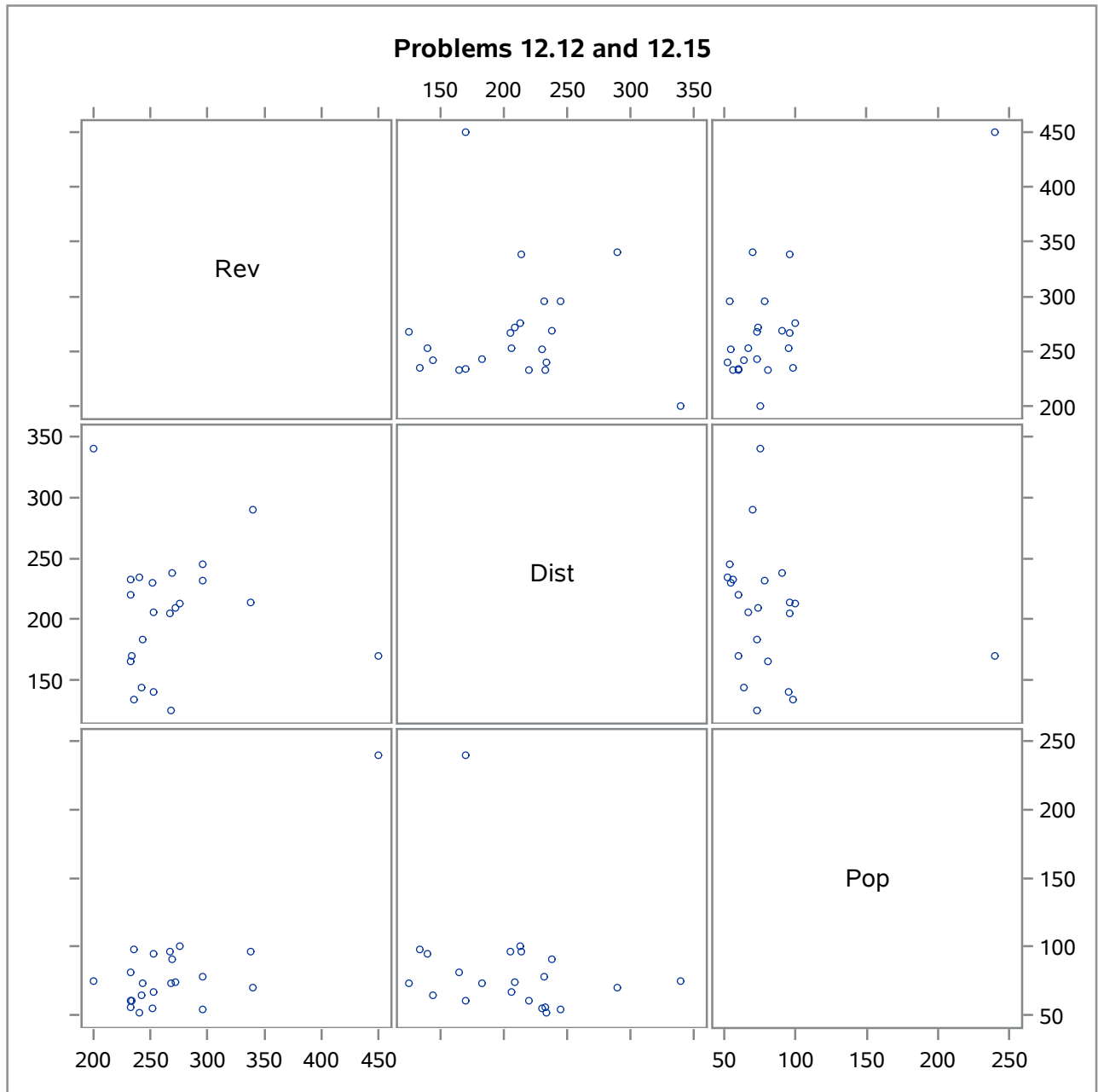


Problems 12.12 and 12.15

Obs	Airport	Rev	Dist	Pop
1	1	233	233	56
2	2	272	209	74
3	3	253	206	67
4	4	296	232	78
5	5	268	125	73
6	6	296	245	54
7	7	276	213	100
8	8	235	134	98
9	9	253	140	95
10	10	233	165	81
11	11	240	234	52
12	12	267	205	96
13	13	338	214	96
14	14	243	183	73
15	15	252	230	55
16	16	269	238	91
17	17	242	144	64
18	18	233	220	60
19	19	234	170	60
20	20	450	170	240
21	21	340	290	70
22	22	200	340	75



The CORR Procedure

3 Variables:	Rev	Dist	Pop
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Simple Statistics						
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
Rev	22	269.22727	52.62620	5923	200.00000	450.00000
Dist	22	206.36364	51.35548	4540	125.00000	340.00000
Pop	22	82.18182	38.56181	1808	52.00000	240.00000

Pearson Correlation Coefficients, N = 22 Prob > r under H0: Rho=0			
	Rev	Dist	Pop
Rev	1.00000	-0.02706 0.9049	0.76224 <.0001
Dist	-0.02706 0.9049	1.00000	-0.23965 0.2827
Pop	0.76224 <.0001	-0.23965 0.2827	1.00000

The REG Procedure
Model: MODEL1
Dependent Variable: Rev

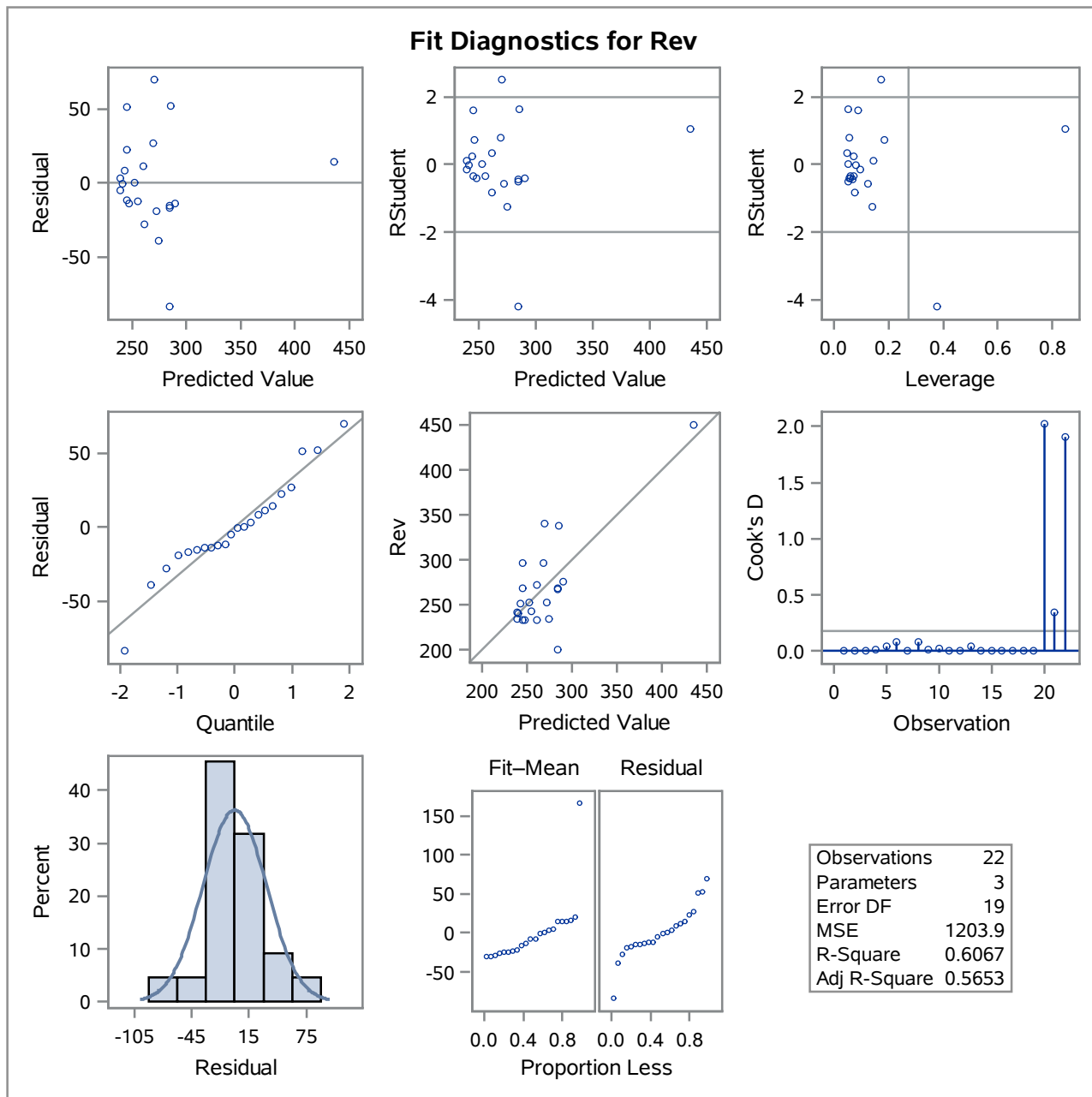
Number of Observations Read	22
Number of Observations Used	22

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	35286	17643	14.65	0.0001
Error	19	22874	1203.90729		
Corrected Total	21	58160			

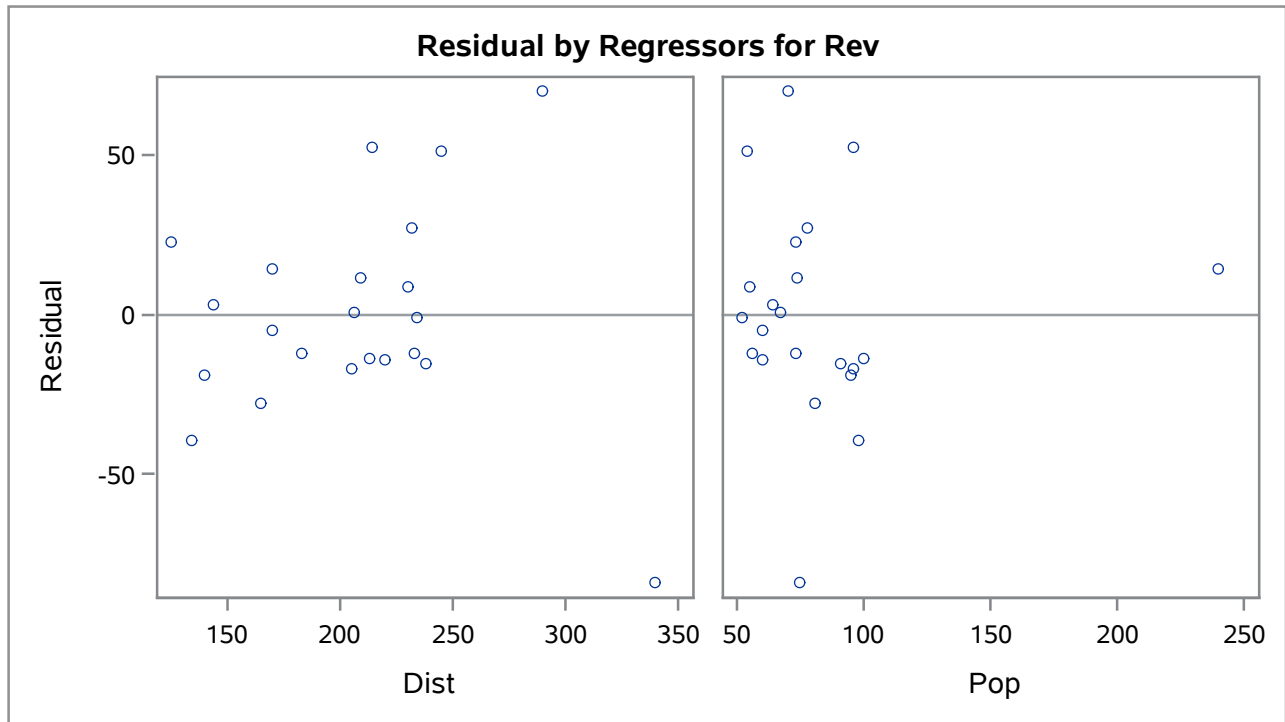
Root MSE	34.69737	R-Square	0.6067
Dependent Mean	269.22727	Adj R-Sq	0.5653
Coeff Var	12.88776		

Parameter Estimates						
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t	Variance Inflation
Intercept	1	144.38847	39.53121	3.65	0.0017	0
Dist	1	0.16918	0.15186	1.11	0.2792	1.06093
Pop	1	1.09424	0.20224	5.41	<.0001	1.06093

The REG Procedure
 Model: MODEL1
 Dependent Variable: Rev

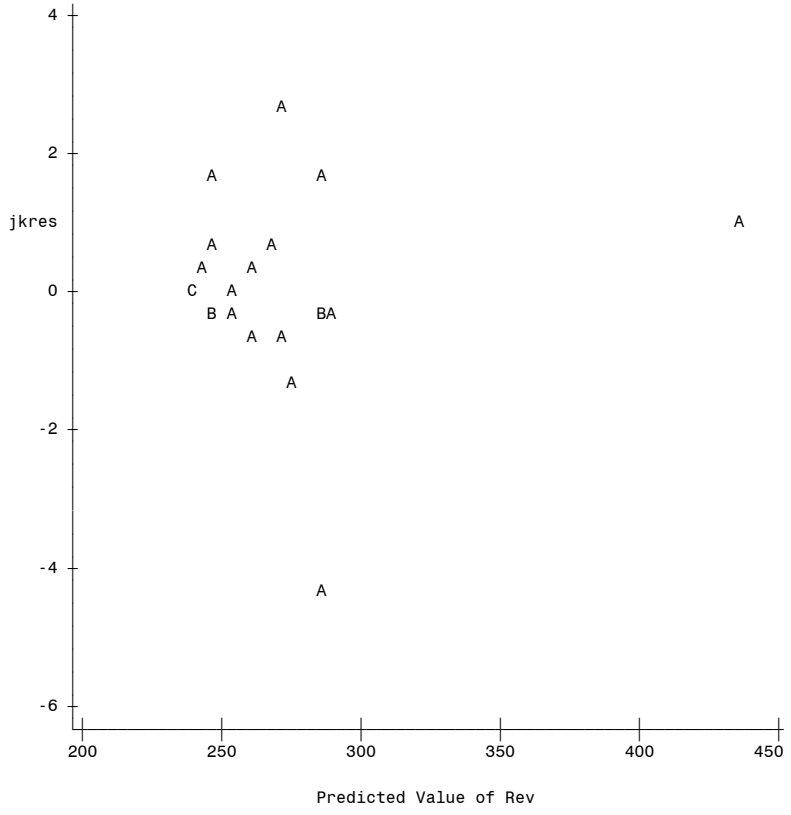


The REG Procedure
Model: MODEL1
Dependent Variable: Rev



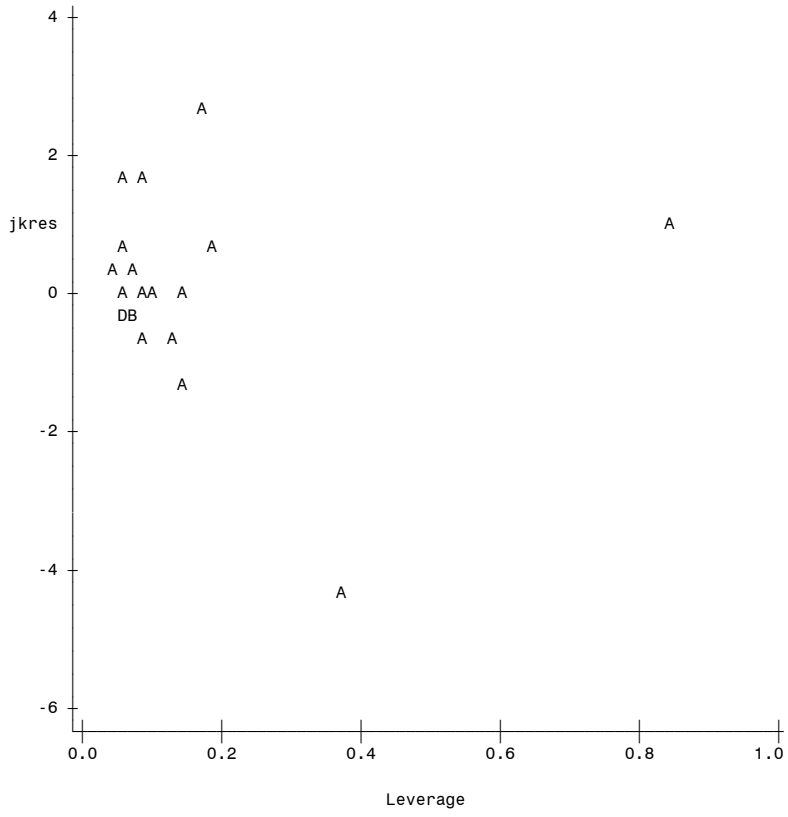
Problems 12.12 and 12.15

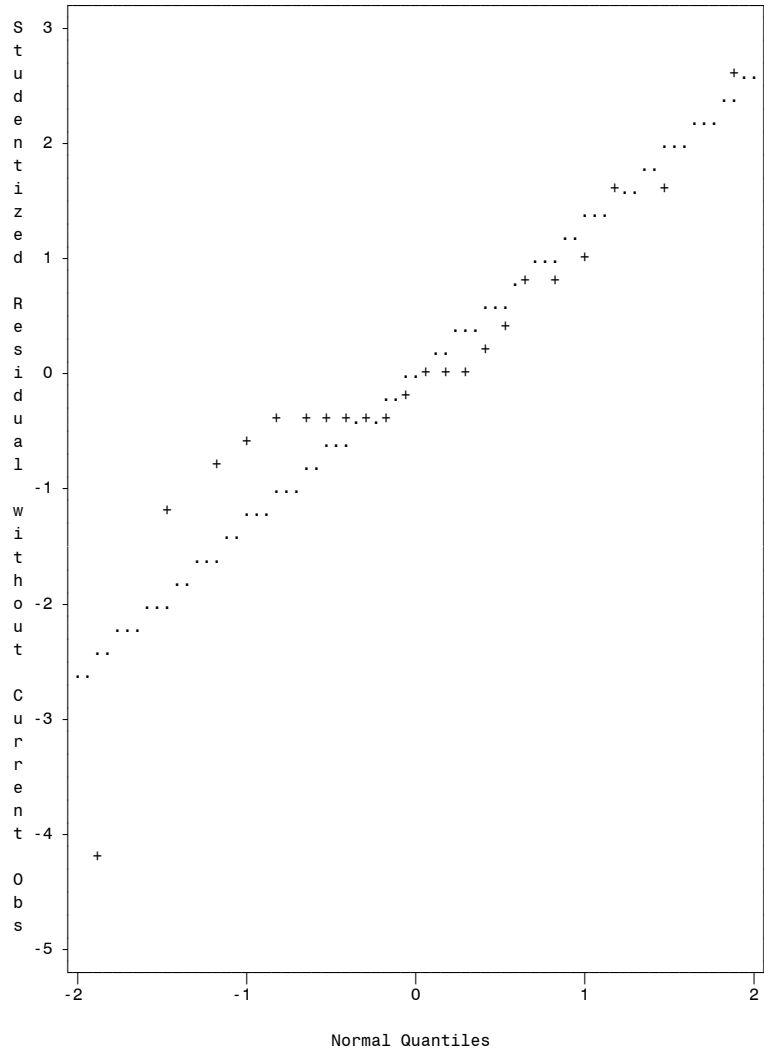
Plot of $jkres \cdot pred.$ Legend: A = 1 obs, B = 2 obs, etc.

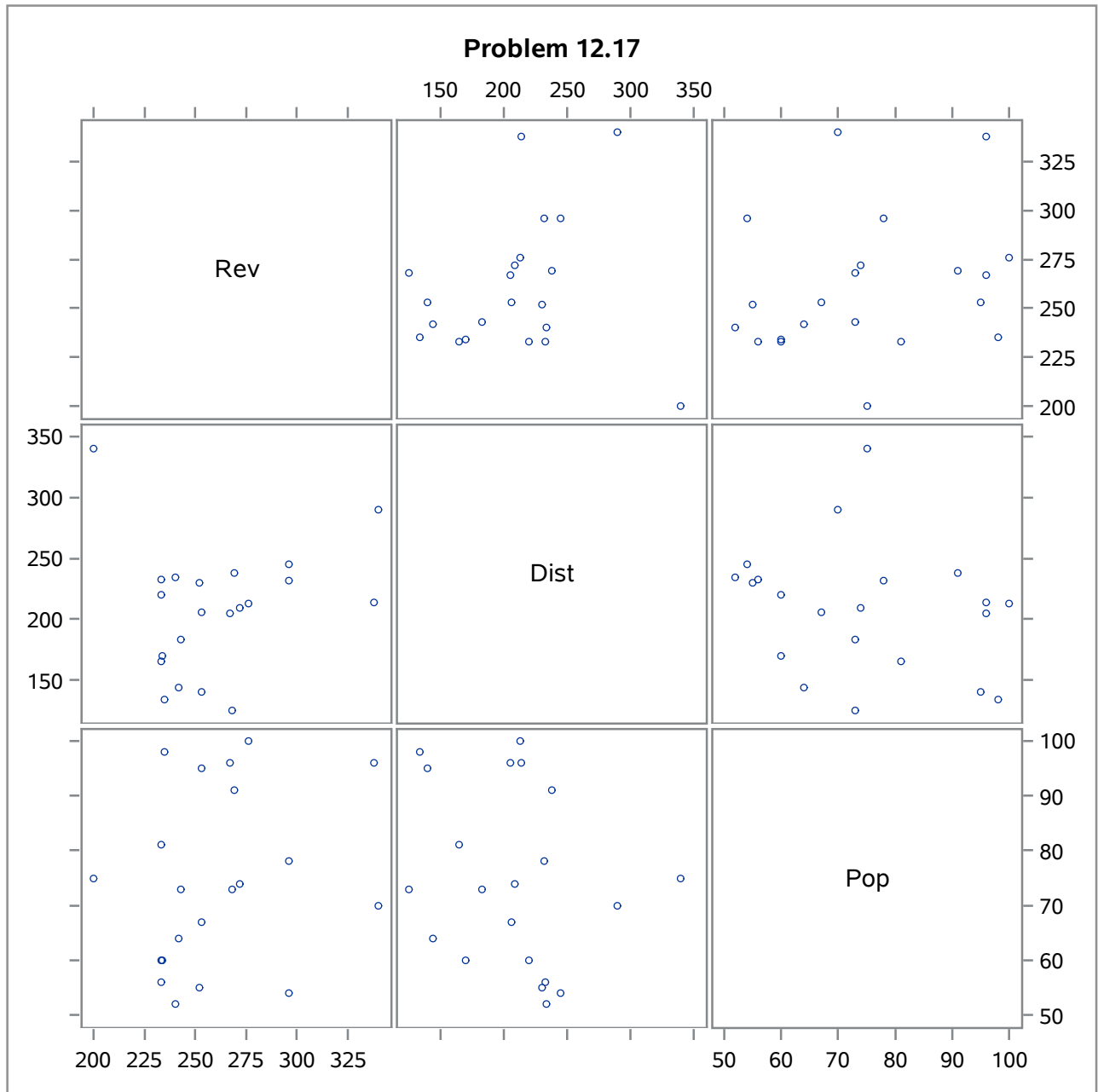


Problems 12.12 and 12.15

Plot of $jkres \cdot \hat{h}$. Legend: A = 1 obs, B = 2 obs, etc.







The CORR Procedure

3 Variables:	Rev	Dist	Pop
---------------------	-----	------	-----

Simple Statistics						
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
Rev	21	260.61905	34.58681	5473	200.00000	340.00000
Dist	21	208.09524	51.96143	4370	125.00000	340.00000
Pop	21	74.66667	16.02290	1568	52.00000	100.00000

Pearson Correlation Coefficients, N = 21 Prob > r under H0: Rho=0			
	Rev	Dist	Pop
Rev	1.00000	0.14887 0.5196	0.23425 0.3068
Dist	0.14887 0.5196	1.00000	-0.23748 0.2999
Pop	0.23425 0.3068	-0.23748 0.2999	1.00000

Problem 12.17

**The REG Procedure
Model: MODEL1
Dependent Variable: Rev**

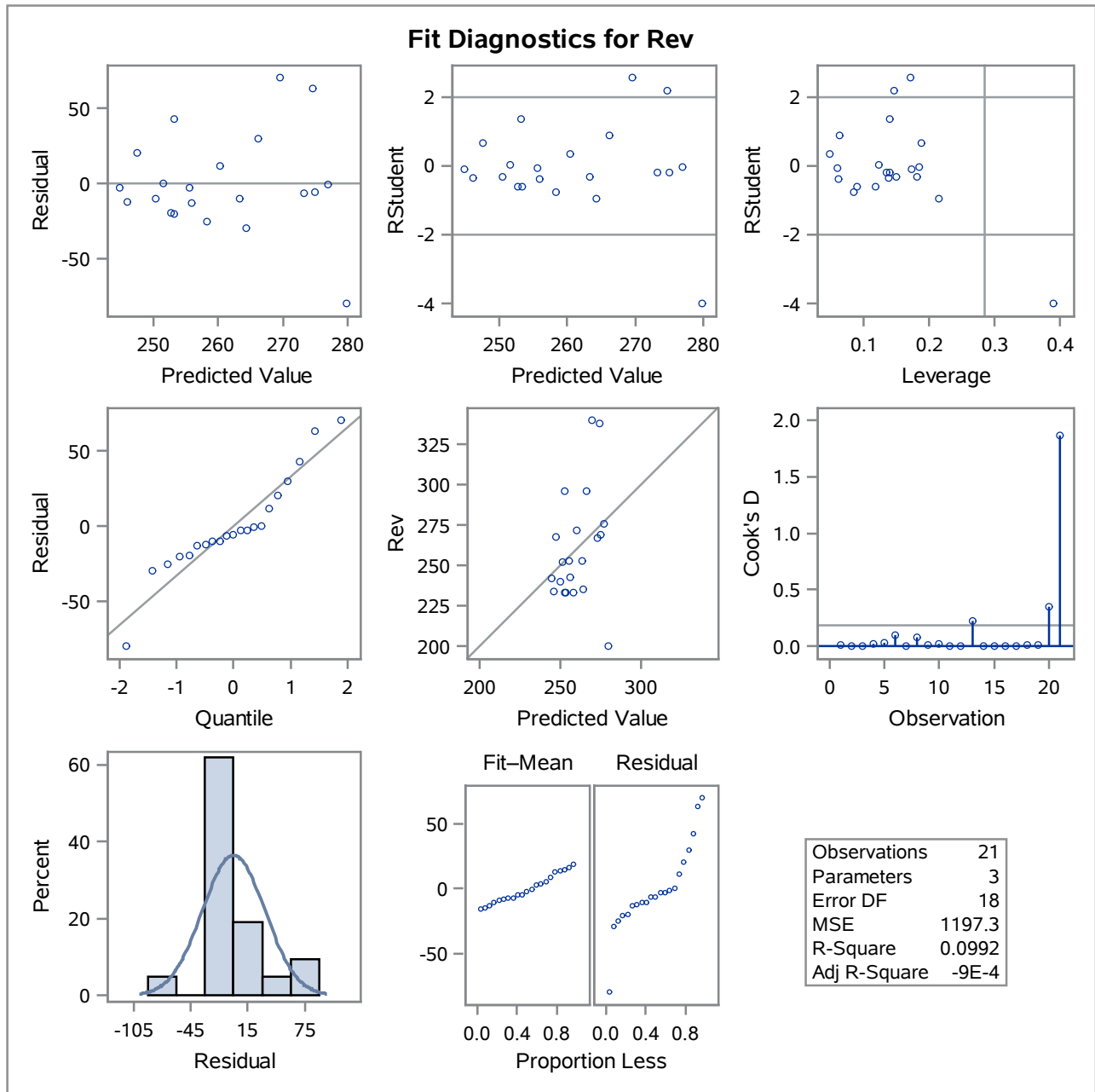
Number of Observations Read	21
Number of Observations Used	21

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	2373.11709	1186.55855	0.99	0.3906
Error	18	21552	1197.32418		
Corrected Total	20	23925			

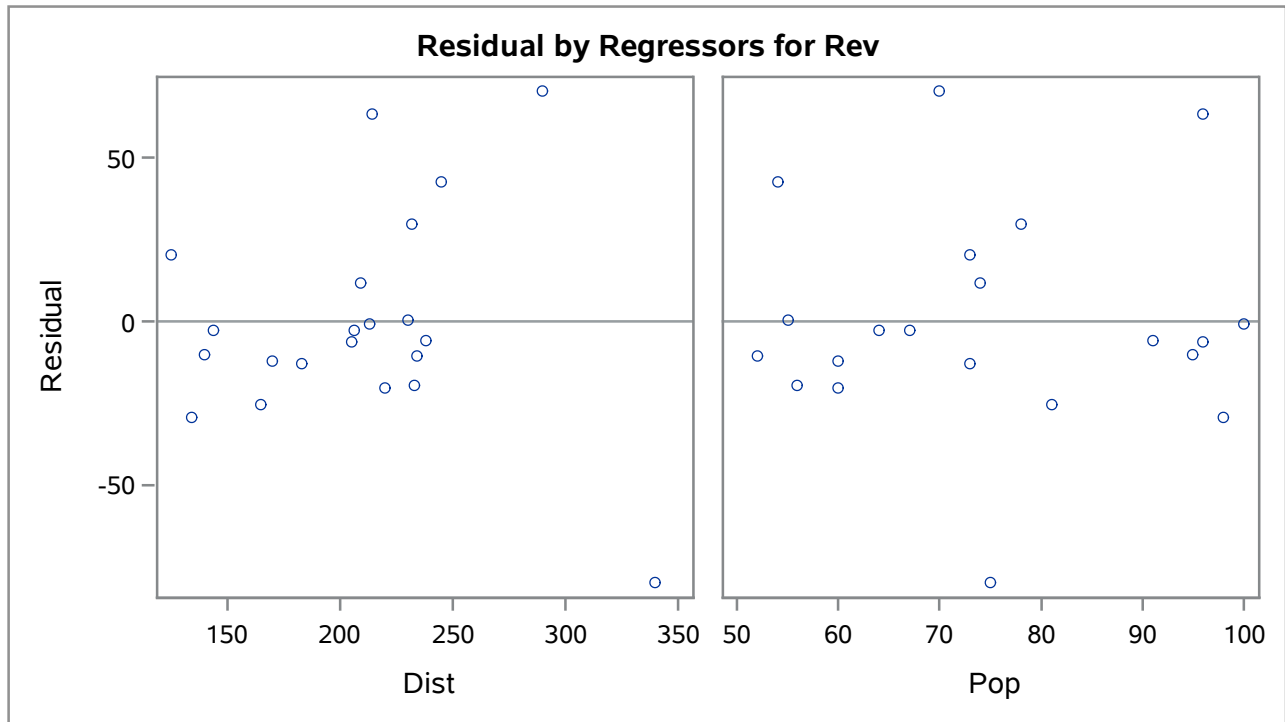
Root MSE	34.60237	R-Square	0.0992
Dependent Mean	260.61905	Adj R-Sq	-0.0009
Coeff Var	13.27699		

Parameter Estimates						
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t	Variance Inflation
Intercept	1	184.55110	54.90574	3.36	0.0035	0
Dist	1	0.14425	0.15329	0.94	0.3591	1.05977
Pop	1	0.61674	0.49711	1.24	0.2307	1.05977

The REG Procedure
 Model: MODEL1
 Dependent Variable: Rev

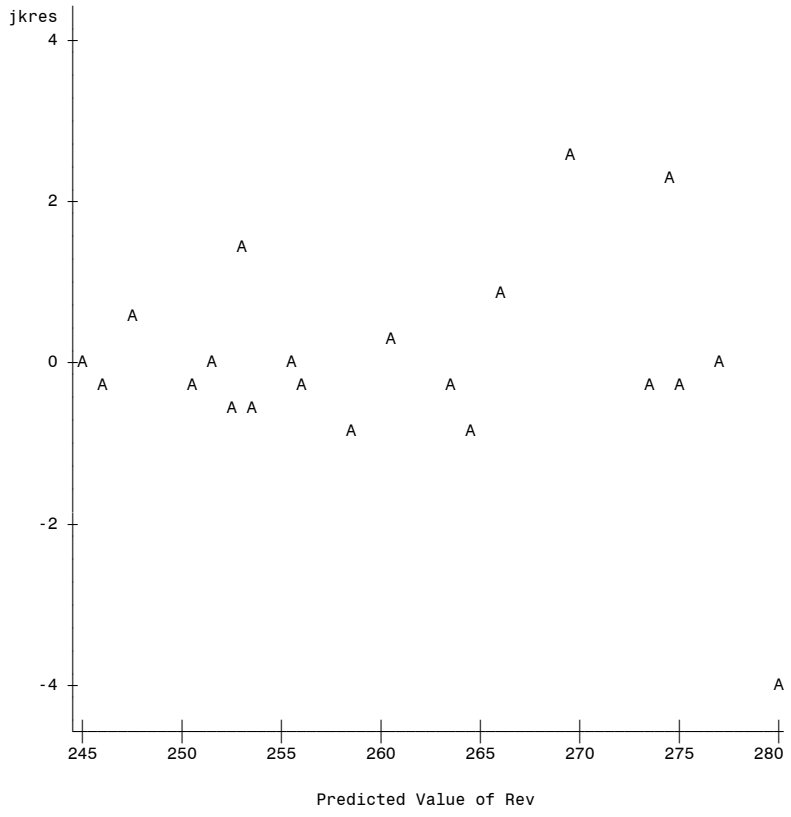


The REG Procedure
Model: MODEL1
Dependent Variable: Rev



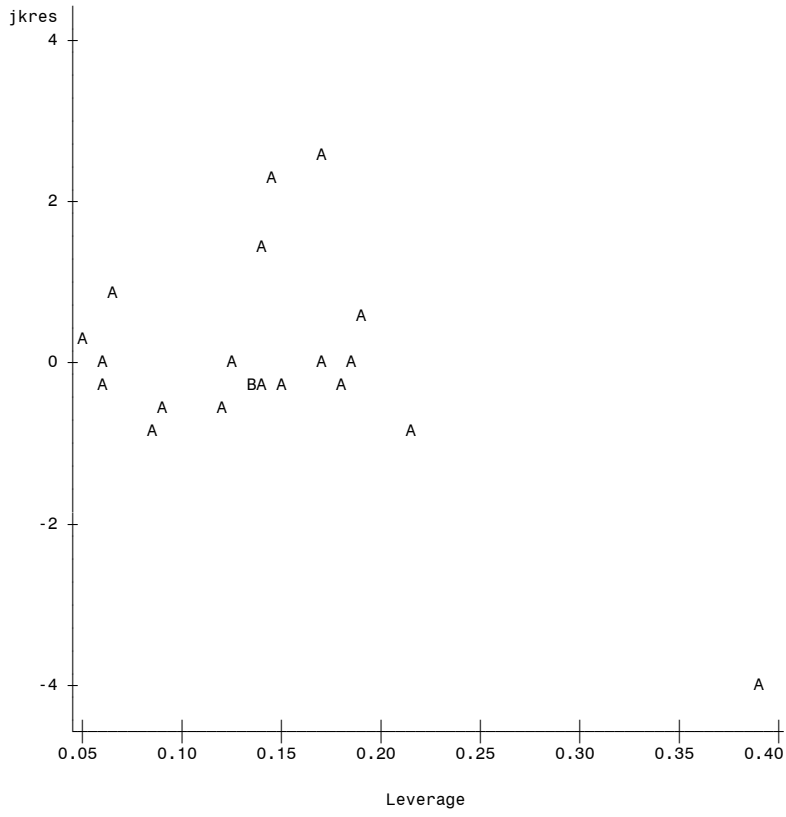
Problem 12.17

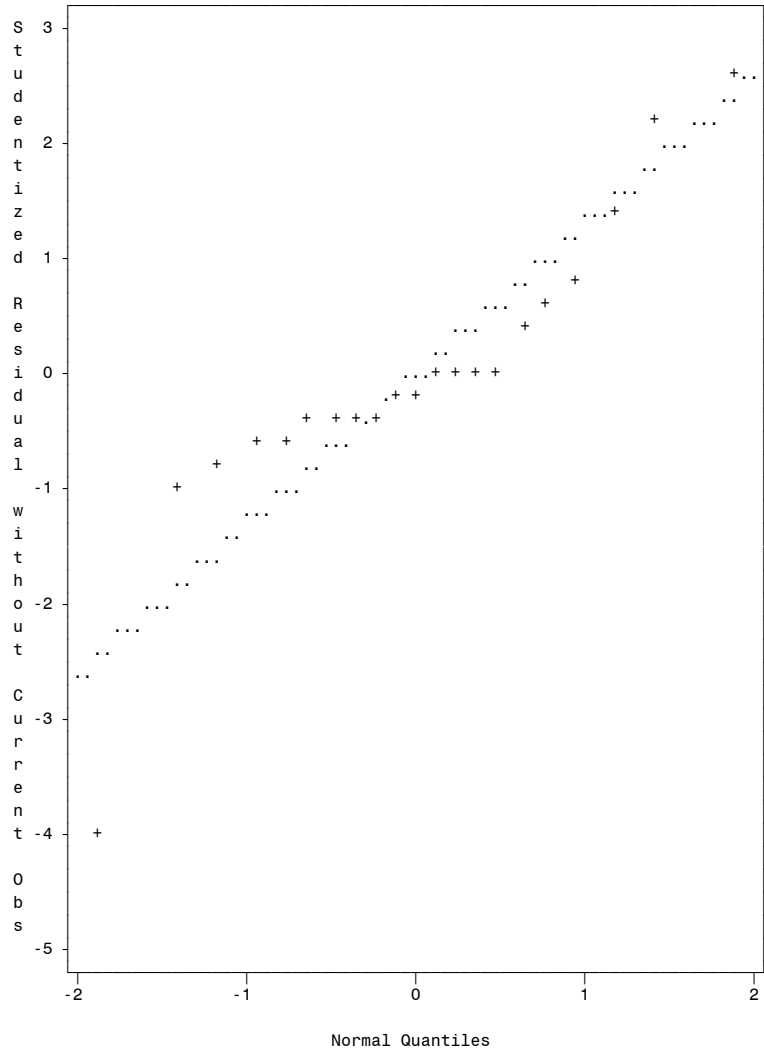
Plot of $jkres \cdot pred.$ Legend: A = 1 obs, B = 2 obs, etc.



Problem 12.17

Plot of $jkres \cdot \hat{h}$. Legend: A = 1 obs, B = 2 obs, etc.





Normal Line: ... Mu=-0.042, Sigma=1.2891

Problem 12.53

Obs	STEER	PROTEIN	ANTIBIO	SUPPLEM	TIME
1	1	10	1	3	88
2	2	10	1	5	82
3	3	10	1	7	81
4	4	10	2	3	82
5	5	10	2	5	83
6	6	10	2	7	75
7	7	15	1	3	80
8	8	15	1	5	80
9	9	15	1	7	75
10	10	15	2	3	77
11	11	15	2	5	76
12	12	15	2	7	72
13	13	20	1	3	79
14	14	20	1	5	74
15	15	20	1	7	75
16	16	20	2	3	74
17	17	20	2	5	70
18	18	20	2	7	69

Problem 12.53

The REG Procedure
Model: MODEL1
Dependent Variable: TIME

Number of Observations Read	18
Number of Observations Used	18

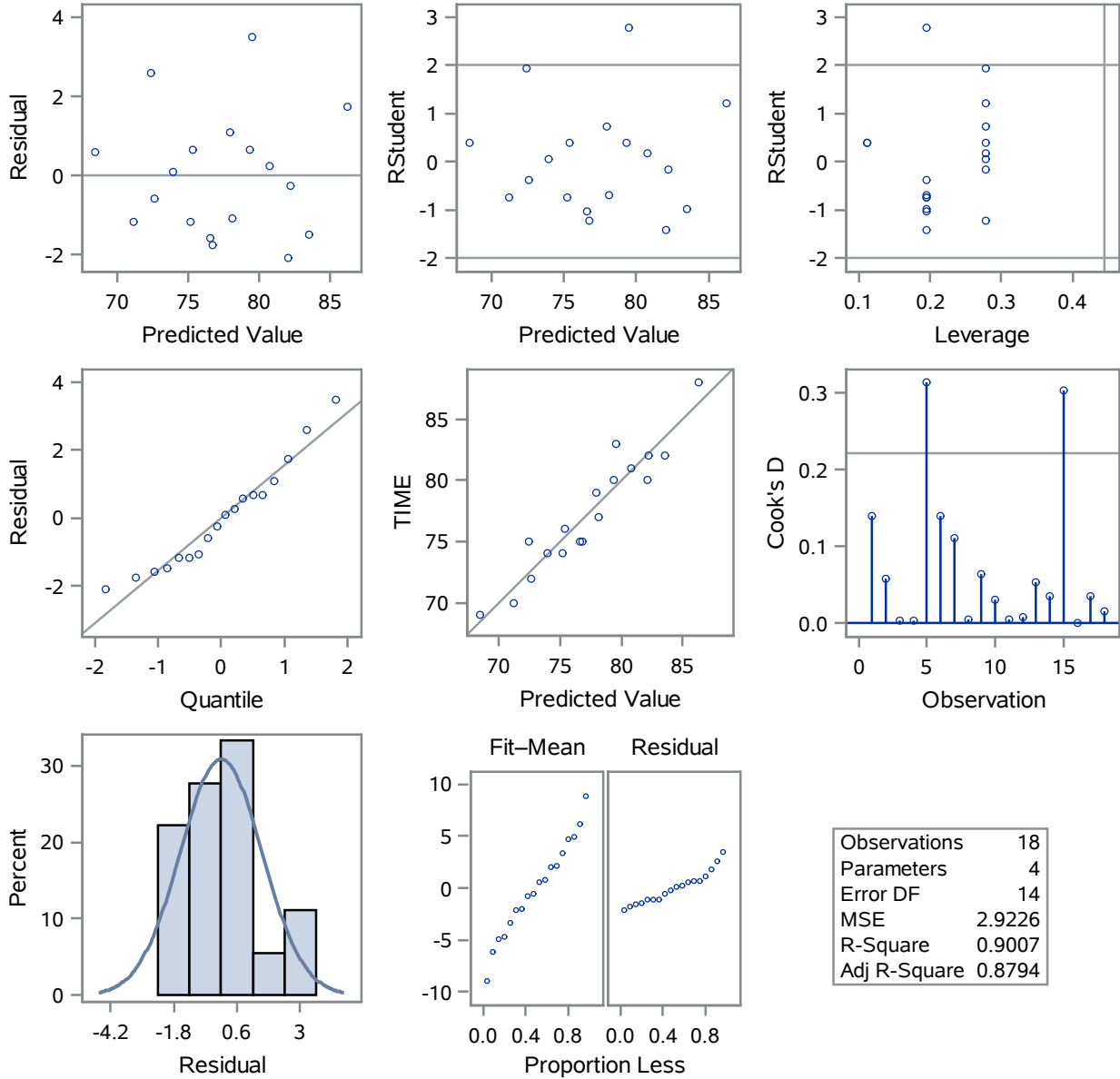
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	371.08333	123.69444	42.32	<.0001
Error	14	40.91667	2.92262		
Corrected Total	17	412.00000			

Root MSE	1.70957	R-Square	0.9007
Dependent Mean	77.33333	Adj R-Sq	0.8794
Coeff Var	2.21065		

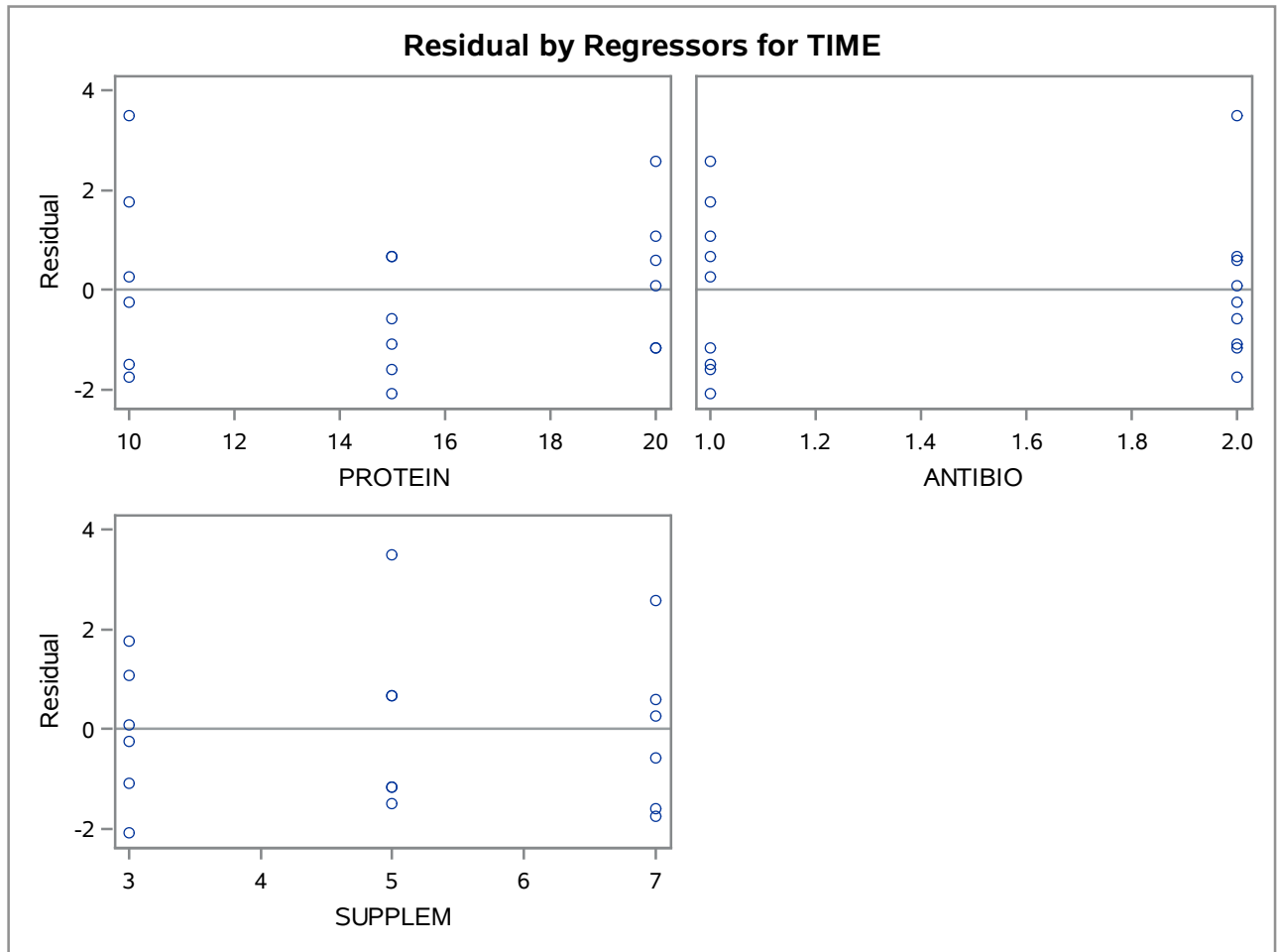
Parameter Estimates						
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t	Variance Inflation
Intercept	1	102.70833	2.31038	44.46	<.0001	0
PROTEIN	1	-0.83333	0.09870	-8.44	<.0001	1.00000
ANTIBIO	1	-4.00000	0.80590	-4.96	0.0002	1.00000
SUPPLEM	1	-1.37500	0.24675	-5.57	<.0001	1.00000

The REG Procedure
 Model: MODEL1
 Dependent Variable: TIME

Fit Diagnostics for TIME



The REG Procedure
Model: MODEL1
Dependent Variable: TIME



The REG Procedure
 Model: MODEL1
 Dependent Variable: TIME

Number of Observations Read	18
Number of Observations Used	18

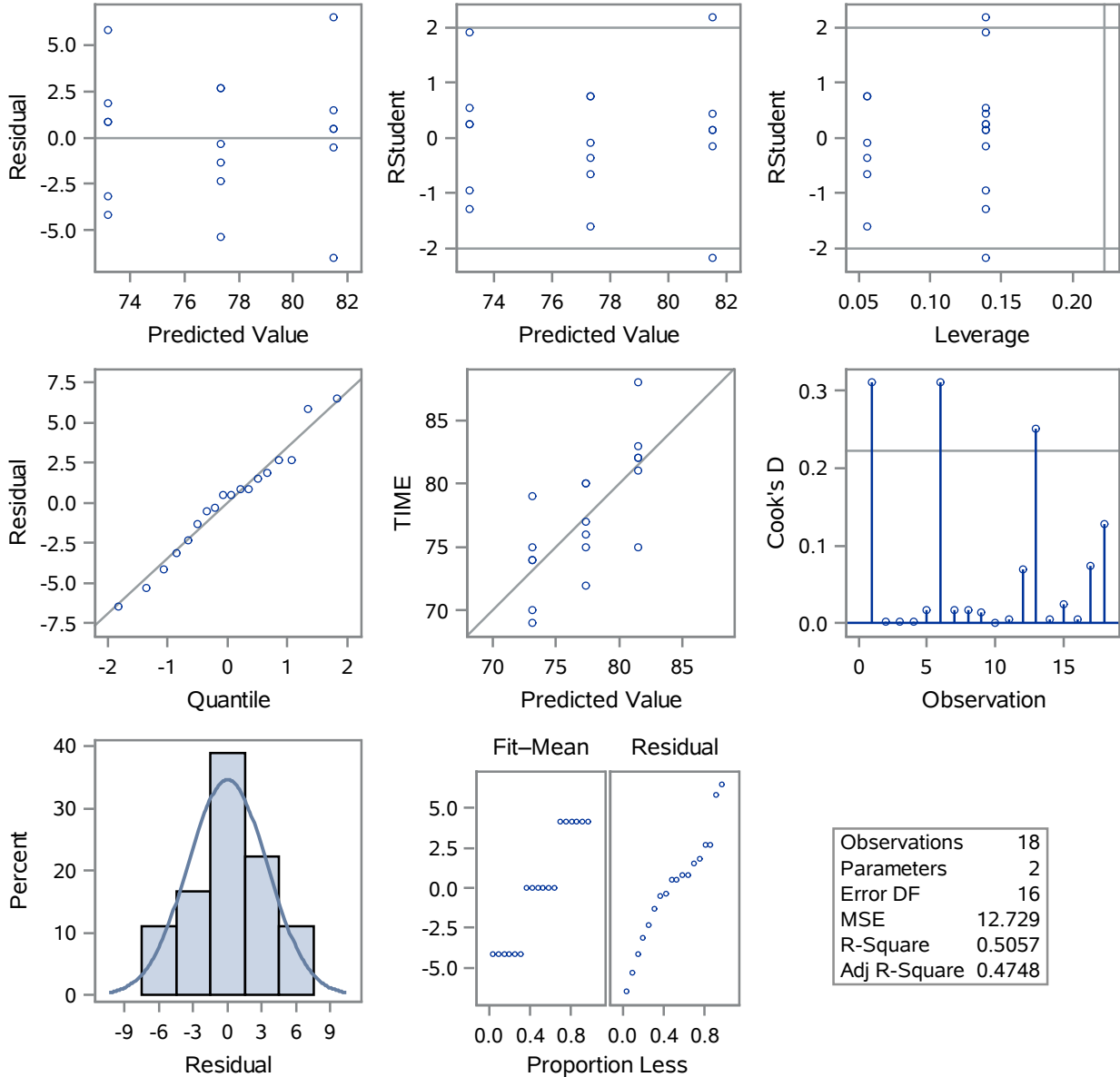
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	208.33333	208.33333	16.37	0.0009
Error	16	203.66667	12.72917		
Corrected Total	17	412.00000			

Root MSE	3.56780	R-Square	0.5057
Dependent Mean	77.33333	Adj R-Sq	0.4748
Coeff Var	4.61353		

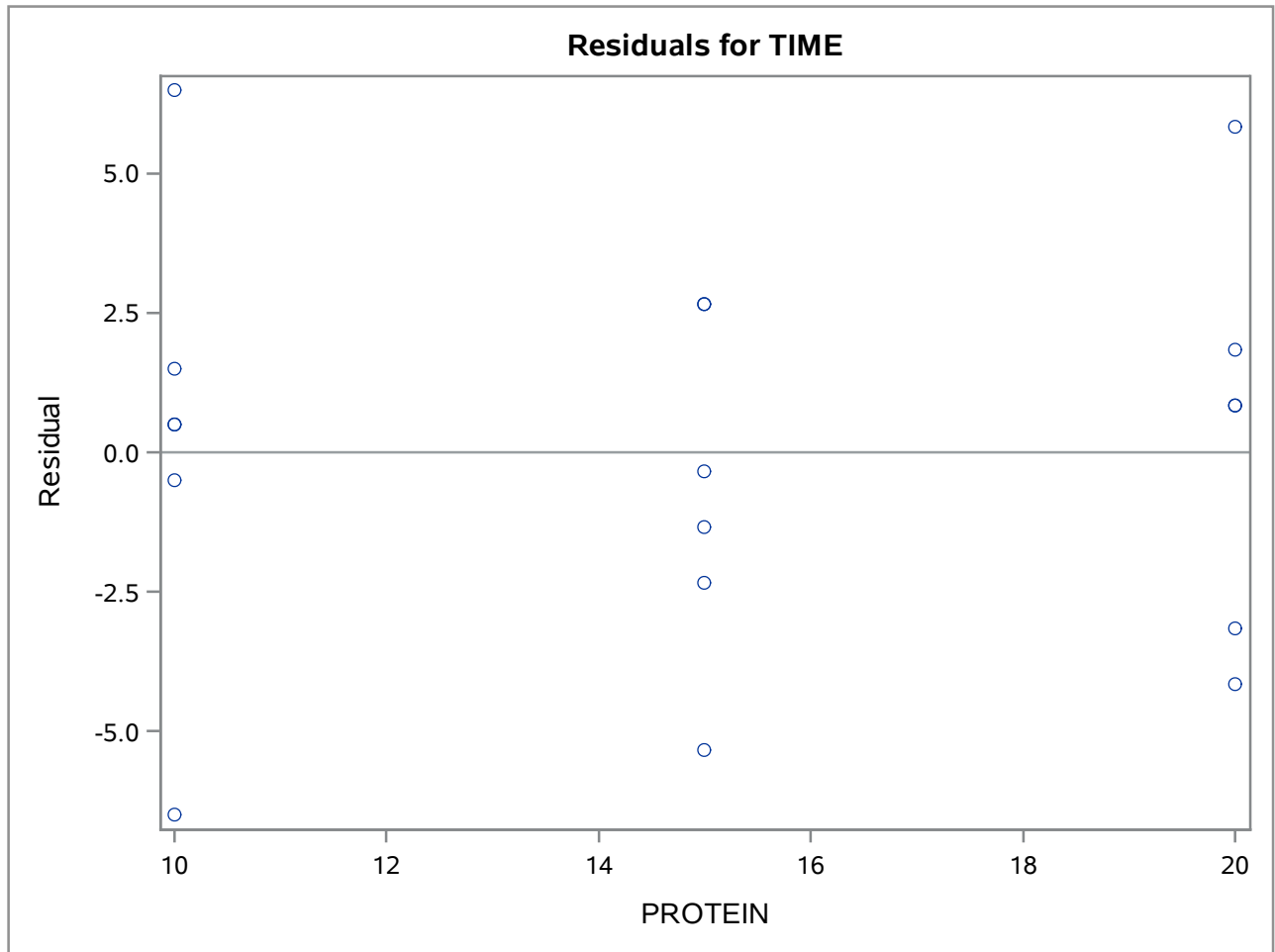
Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	89.83333	3.20219	28.05	<.0001
PROTEIN	1	-0.83333	0.20599	-4.05	0.0009

The REG Procedure
 Model: MODEL1
 Dependent Variable: TIME

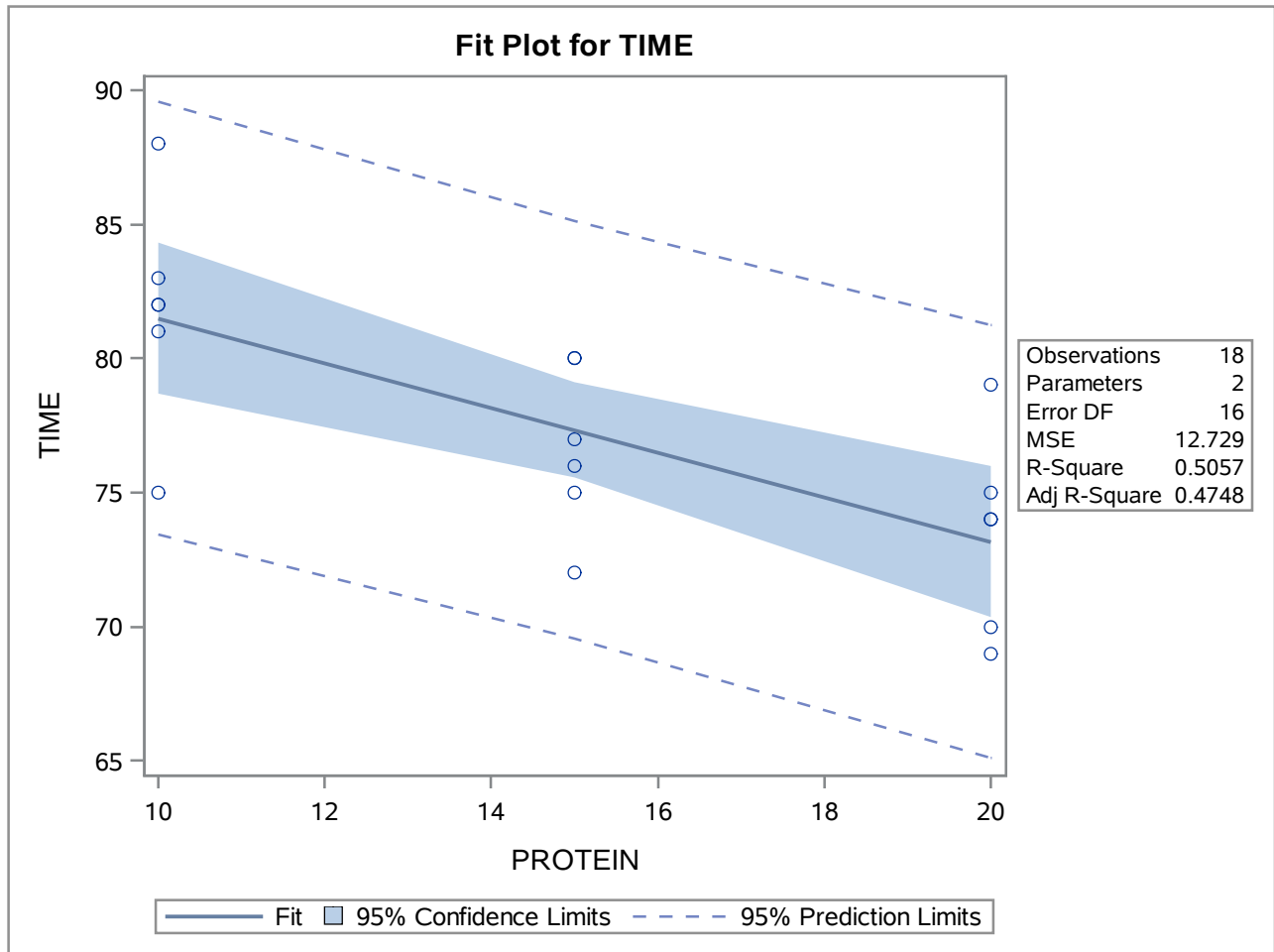
Fit Diagnostics for TIME



The REG Procedure
Model: MODEL1
Dependent Variable: TIME



The REG Procedure
 Model: MODEL1
 Dependent Variable: TIME



Problem 12.55

The REG Procedure
Model: MODEL1
Dependent Variable: TIME

Number of Observations Read	18
Number of Observations Used	18

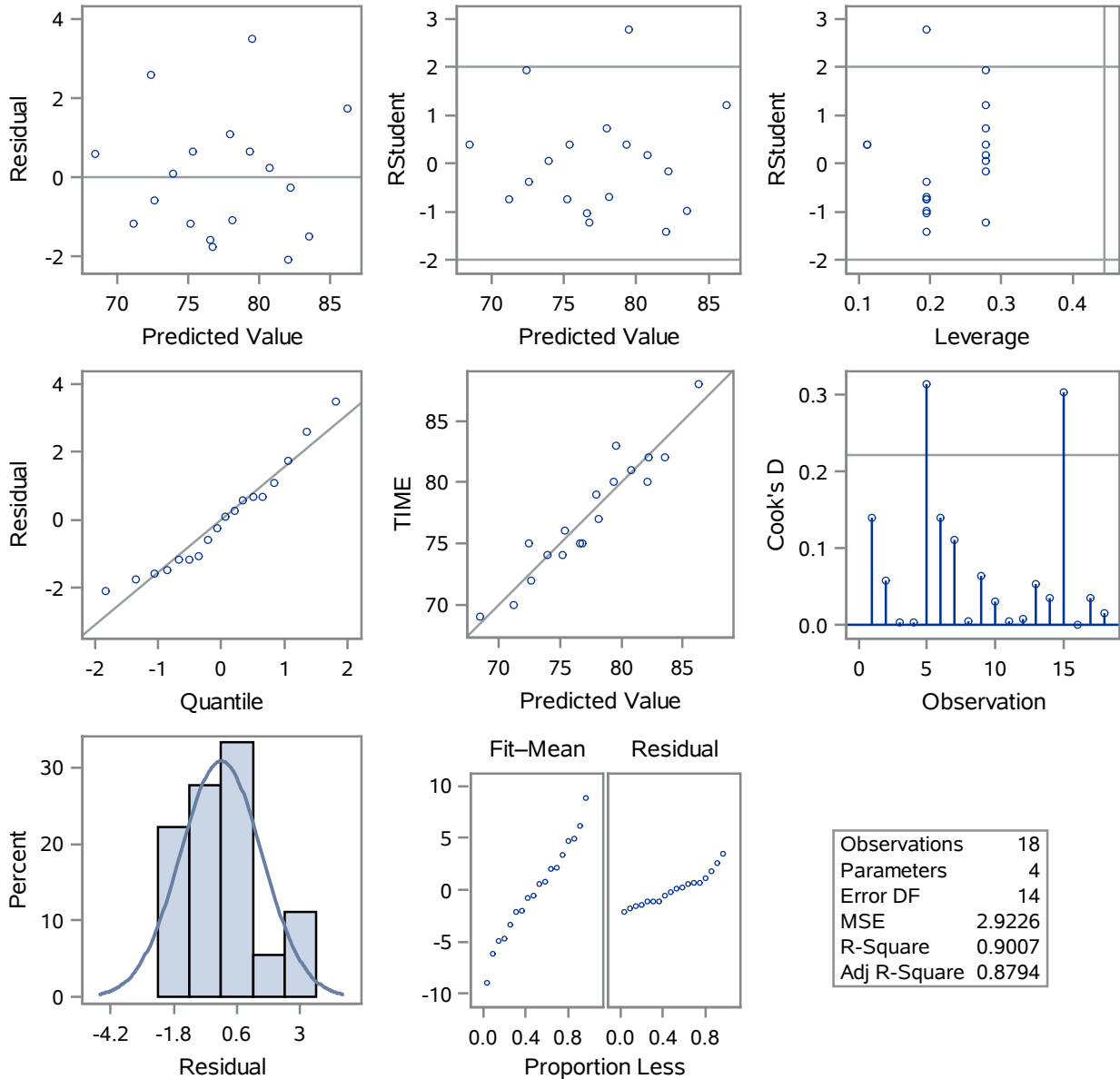
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	371.08333	123.69444	42.32	<.0001
Error	14	40.91667	2.92262		
Corrected Total	17	412.00000			

Root MSE	1.70957	R-Square	0.9007
Dependent Mean	77.33333	Adj R-Sq	0.8794
Coeff Var	2.21065		

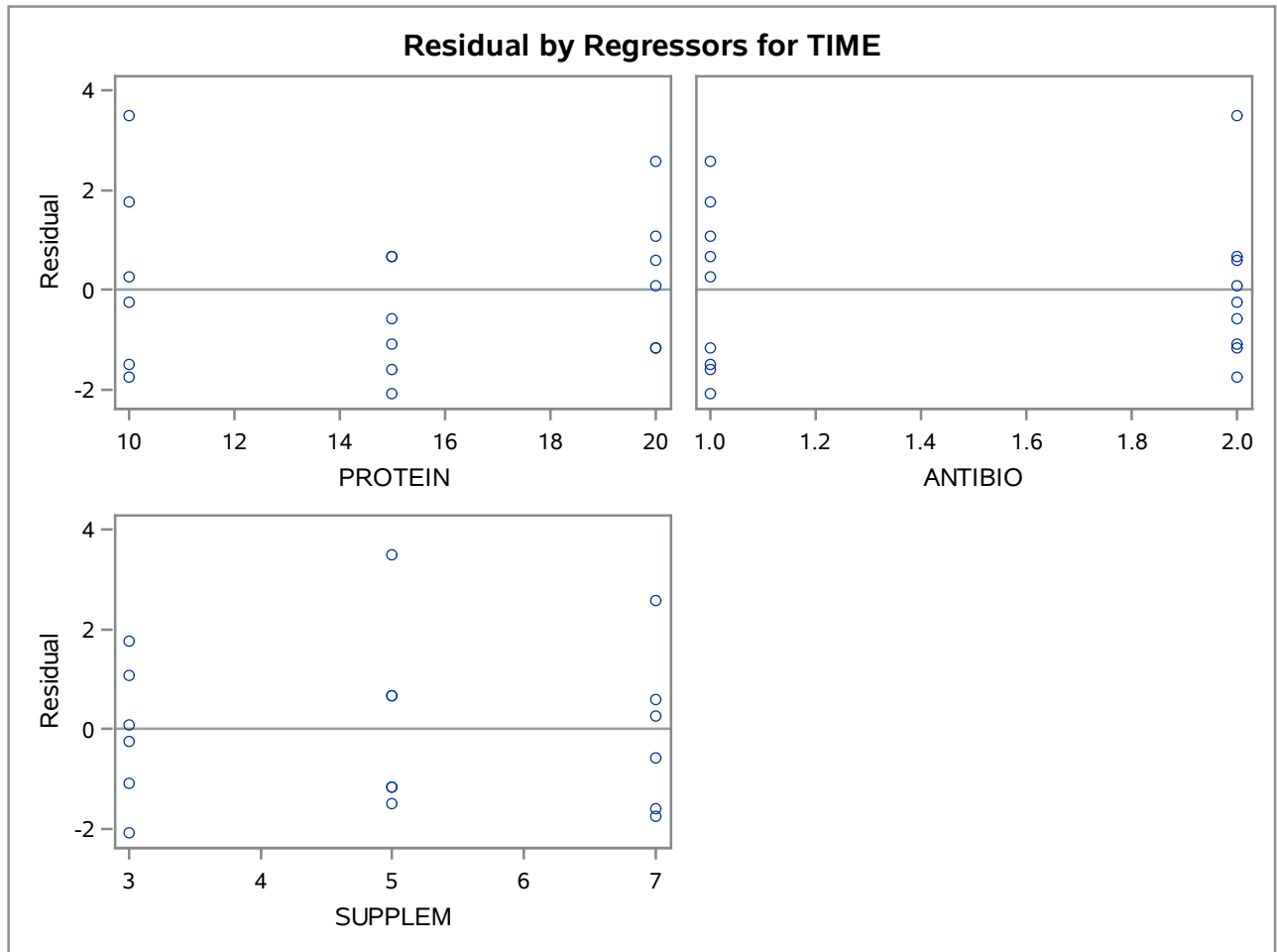
Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	102.70833	2.31038	44.46	<.0001
PROTEIN	1	-0.83333	0.09870	-8.44	<.0001
ANTIBIO	1	-4.00000	0.80590	-4.96	0.0002
SUPPLEM	1	-1.37500	0.24675	-5.57	<.0001

The REG Procedure
 Model: MODEL1
 Dependent Variable: TIME

Fit Diagnostics for TIME



The REG Procedure
Model: MODEL1
Dependent Variable: TIME



**The REG Procedure
Model: MODEL1**

Test antisuppl Results for Dependent Variable TIME				
Source	DF	Mean Square	F Value	Pr > F
Numerator	2	81.37500	27.84	<.0001
Denominator	14	2.92262		

Problem 13.3

Obs	Stu	CRIME	A	C	I	G
1	1	2	16	2	83	1
2	2	0	18	2	92	1
3	3	3	18	2	95	1
4	4	9	18	2	81	0
5	5	6	19	2	85	1
6	6	6	19	2	90	1
7	7	7	20	2	98	1
8	8	9	19	2	96	0
9	9	13	18	2	73	0
10	10	12	19	2	76	0
11	11	9	19	2	79	1
12	12	12	20	2	75	0
13	13	12	21	2	80	0
14	14	11	20	2	72	0
15	15	11	24	3	74	0
16	16	12	25	3	75	0
17	17	9	25	3	75	1
18	18	9	27	4	76	1
19	19	11	28	4	72	0
20	20	5	38	4	79	0
21	21	0	29	4	83	1
22	22	6	30	4	75	1
23	23	2	31	4	79	0
24	24	0	32	4	72	1
25	25	3	32	4	75	1
26	26	0	31	4	77	0
27	27	8	30	4	66	1
28	28	11	29	4	55	0
29	29	13	29	4	52	0
30	30	15	28	4	50	0
31	31	17	27	4	49	0
32	32	18	26	4	48	0
33	33	20	25	4	45	0
34	34	16	24	3	53	0
35	35	18	23	3	46	0
36	36	16	23	3	48	1
37	37	15	22	3	58	0
38	38	21	22	3	44	0

Problem 13.3

Obs	Stu	CRIME	A	C	I	G
39	39	19	22	3	48	0
40	40	17	21	3	49	1
41	41	14	21	2	55	1
42	42	15	20	2	53	0
43	43	19	19	2	47	0
44	44	18	21	3	44	0
45	45	10	21	2	73	1

The REG Procedure
 Model: MODEL1
 Dependent Variable: CRIME

Number of Observations Read	45
Number of Observations Used	45

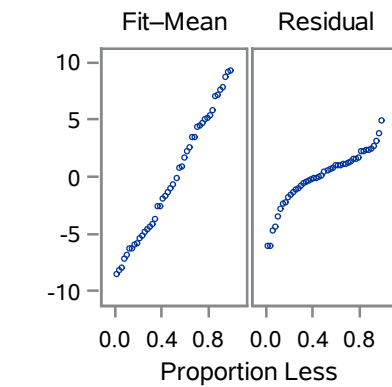
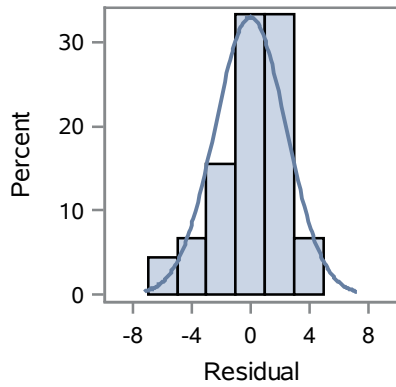
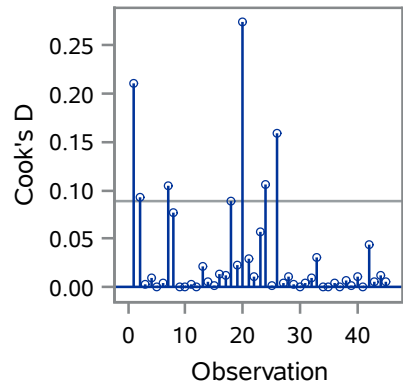
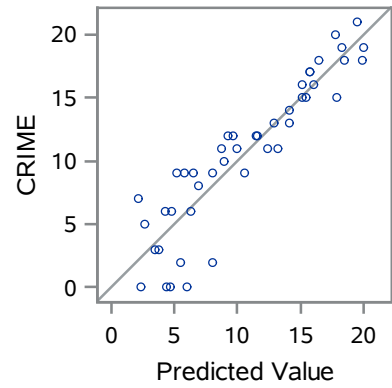
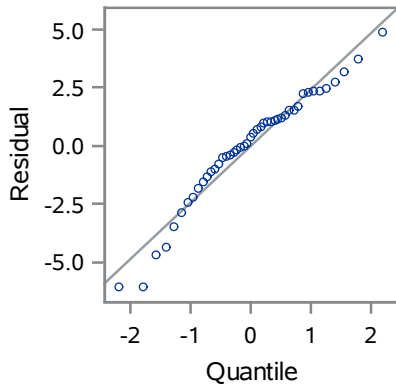
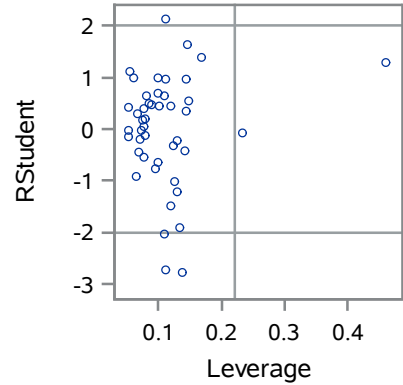
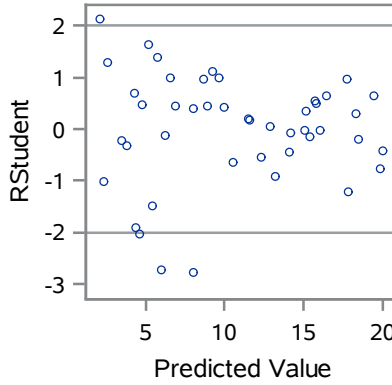
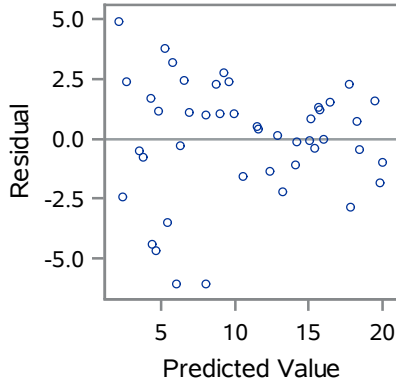
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	1314.39560	328.59890	50.96	<.0001
Error	40	257.91552	6.44789		
Corrected Total	44	1572.31111			

Root MSE	2.53927	R-Square	0.8360
Dependent Mean	10.64444	Adj R-Sq	0.8196
Coeff Var	23.85535		

Parameter Estimates						
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t	Variance Inflation
Intercept	1	41.68978	2.67418	15.59	<.0001	0
A	1	-0.40446	0.19598	-2.06	0.0456	6.57788
C	1	-0.20399	1.17922	-0.17	0.8635	7.31330
I	1	-0.28948	0.03023	-9.57	<.0001	1.62649
G	1	-2.71355	0.84783	-3.20	0.0027	1.20398

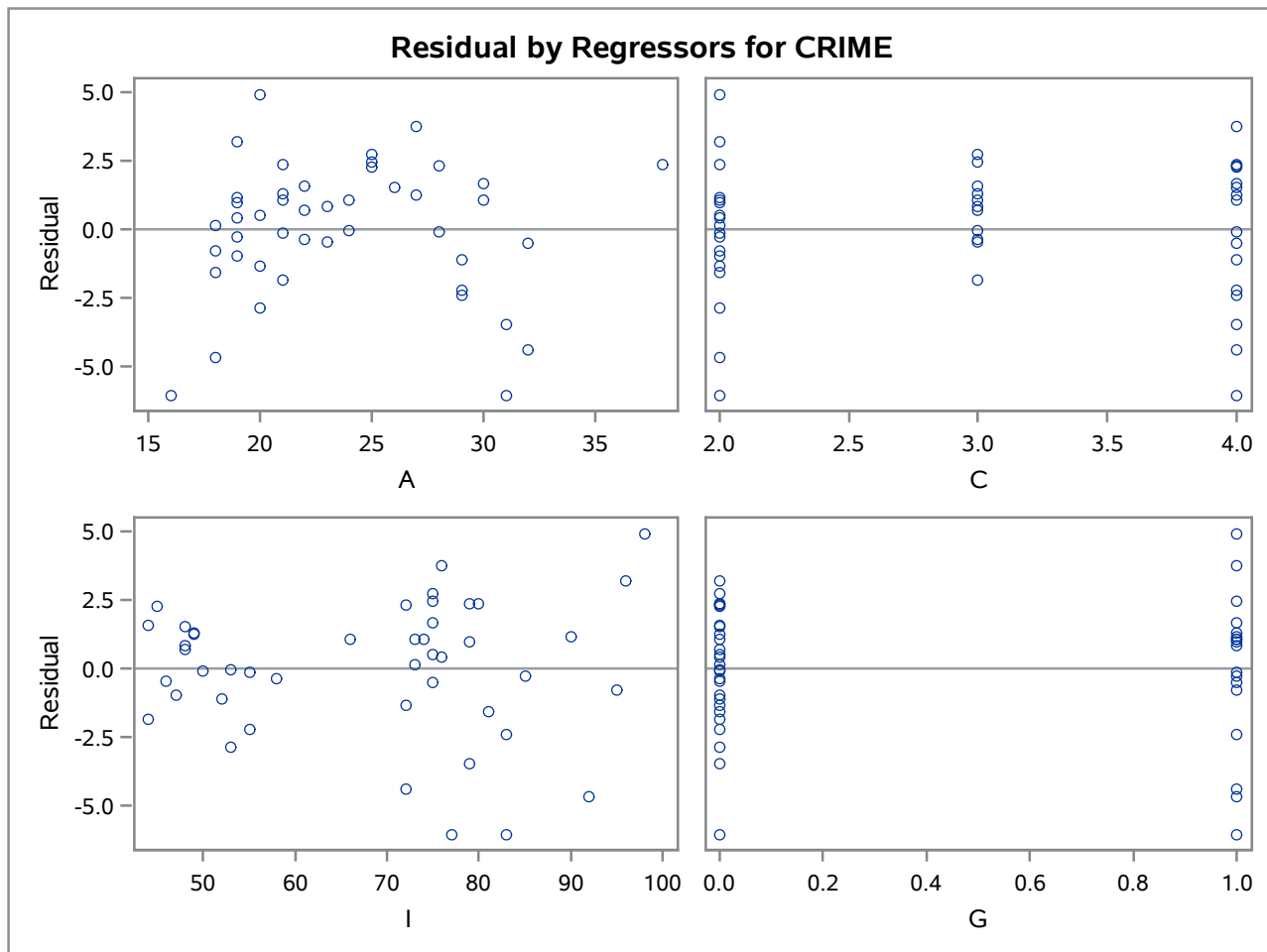
The REG Procedure
Model: MODEL1
Dependent Variable: CRIME

Fit Diagnostics for CRIME



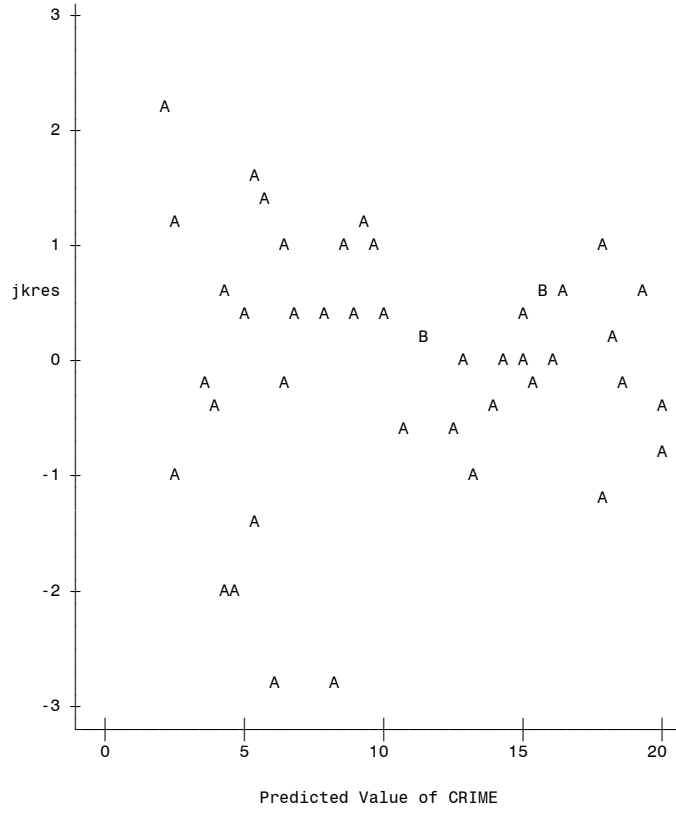
Observations	45
Parameters	5
Error DF	40
MSE	6.4479
R-Square	0.836
Adj R-Square	0.8196

The REG Procedure
Model: MODEL1
Dependent Variable: CRIME



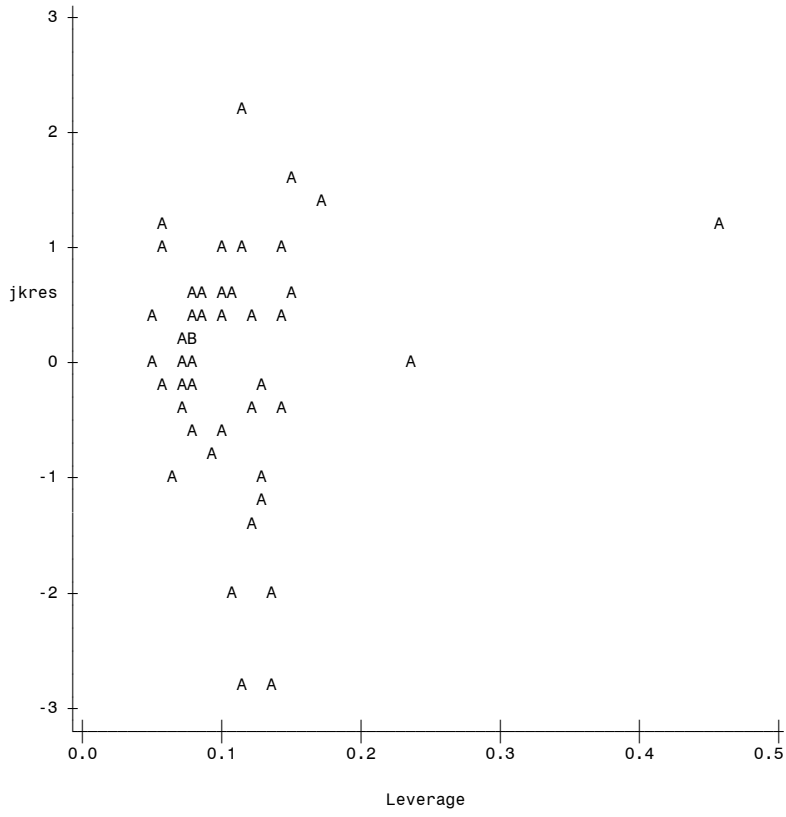
Problem 13.3

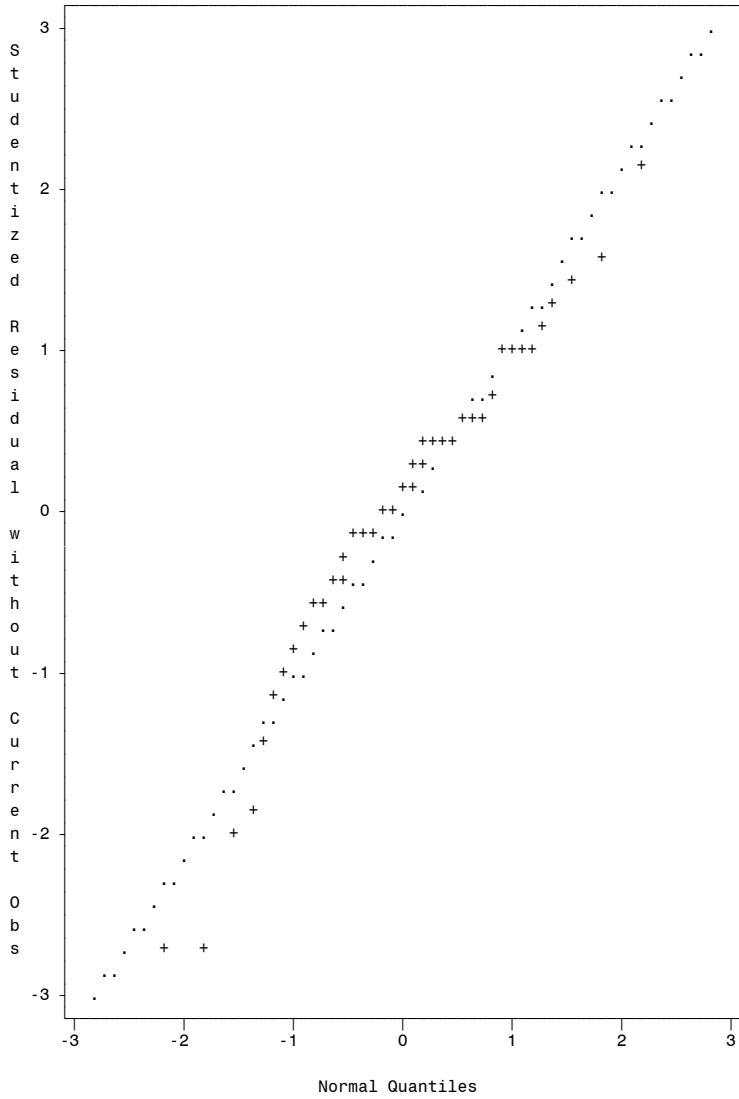
Plot of jkres*pred. Legend: A = 1 obs, B = 2 obs, etc.



Problem 13.3

Plot of $jkres*\hat{hat}$. Legend: A = 1 obs, B = 2 obs, etc.





**The REG Procedure
Model: MODEL1
Dependent Variable: CRIME**

R-Square Selection Method

Number of Observations Read	45
Number of Observations Used	45

Number in Model	R-Square	C(p)	AIC	SBC	SSE	Variables in Model
1	0.6645	40.8017	114.7625	118.37582	527.44849	I
1	0.2612	139.1537	150.2905	153.90386	1161.61111	G
1	0.0589	188.4759	161.1800	164.79330	1479.63513	A
1	0.0018	202.4177	163.8341	167.44743	1569.53014	C
2	0.7929	11.4966	95.0548	100.47480	325.59633	A I
2	0.7814	14.3129	97.4971	102.91708	343.75567	C I
2	0.7051	32.9082	110.9616	116.38163	463.65620	I G
2	0.3391	122.1690	147.2795	152.69944	1039.19940	A G
2	0.2715	138.6424	151.6588	157.07881	1145.41843	C G
3	0.8358	3.0299	86.6023	93.82893	258.10847	A I G
3	0.8185	7.2593	91.1220	98.34869	285.37924	C I G
3	0.7940	13.2438	96.8290	104.05564	323.96650	A C I
3	0.4600	94.6784	140.1854	147.41201	849.04729	A C G
4	0.8360	5.0000	88.5686	97.60194	257.91552	A C I G

The REG Procedure
 Model: MODEL1
 Dependent Variable: CRIME

Number of Observations Read	45
Number of Observations Used	45

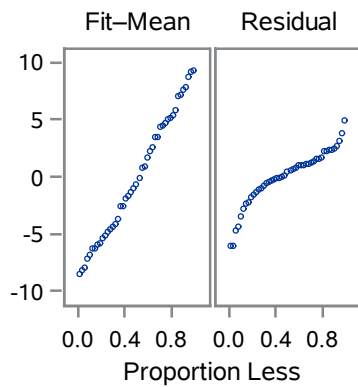
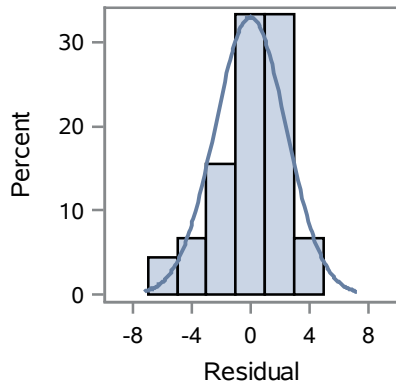
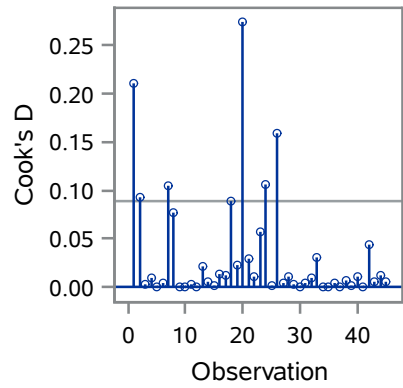
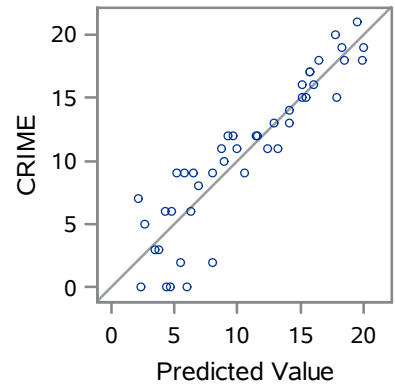
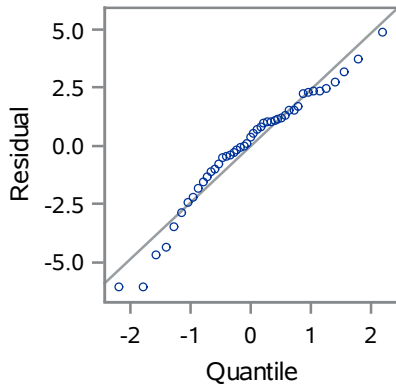
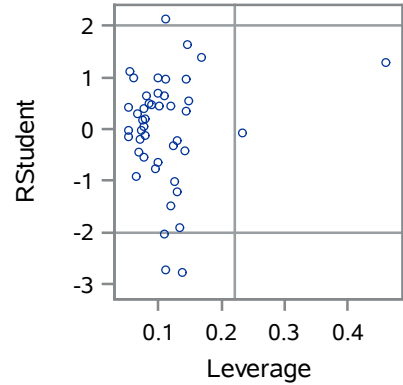
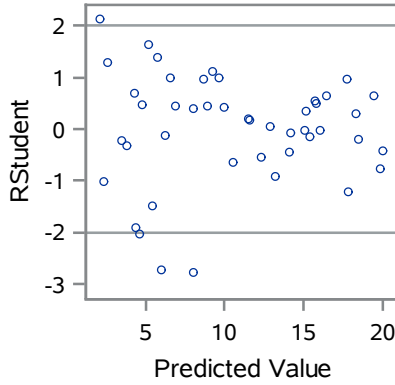
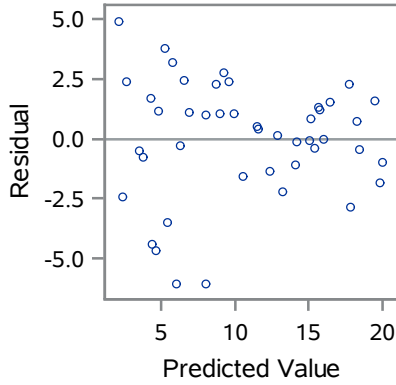
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	1314.39560	328.59890	50.96	<.0001
Error	40	257.91552	6.44789		
Corrected Total	44	1572.31111			

Root MSE	2.53927	R-Square	0.8360
Dependent Mean	10.64444	Adj R-Sq	0.8196
Coeff Var	23.85535		

Parameter Estimates						
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t	Variance Inflation
Intercept	1	41.68978	2.67418	15.59	<.0001	0
A	1	-0.40446	0.19598	-2.06	0.0456	6.57788
C	1	-0.20399	1.17922	-0.17	0.8635	7.31330
I	1	-0.28948	0.03023	-9.57	<.0001	1.62649
G	1	-2.71355	0.84783	-3.20	0.0027	1.20398

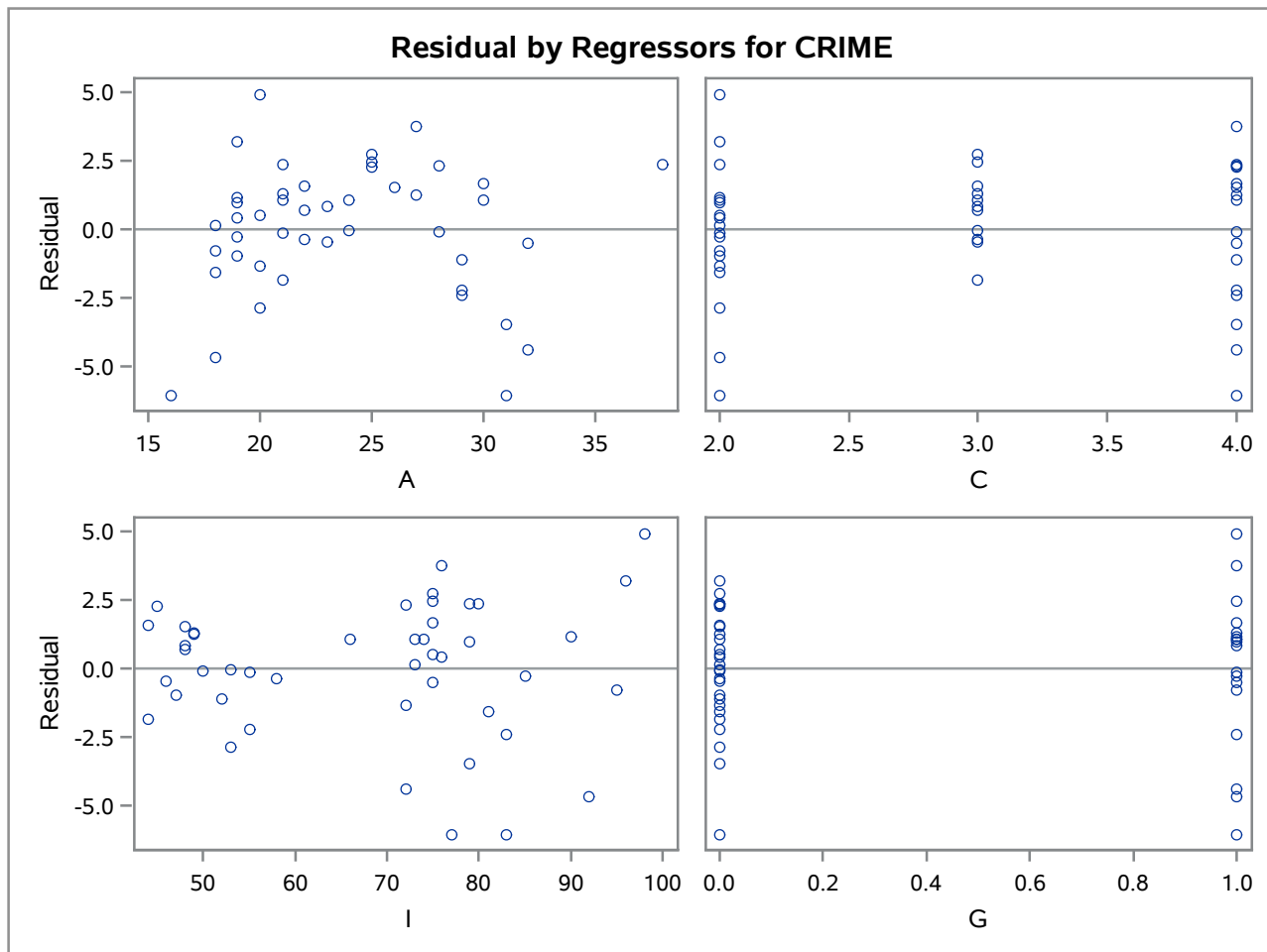
The REG Procedure
 Model: MODEL1
 Dependent Variable: CRIME

Fit Diagnostics for CRIME



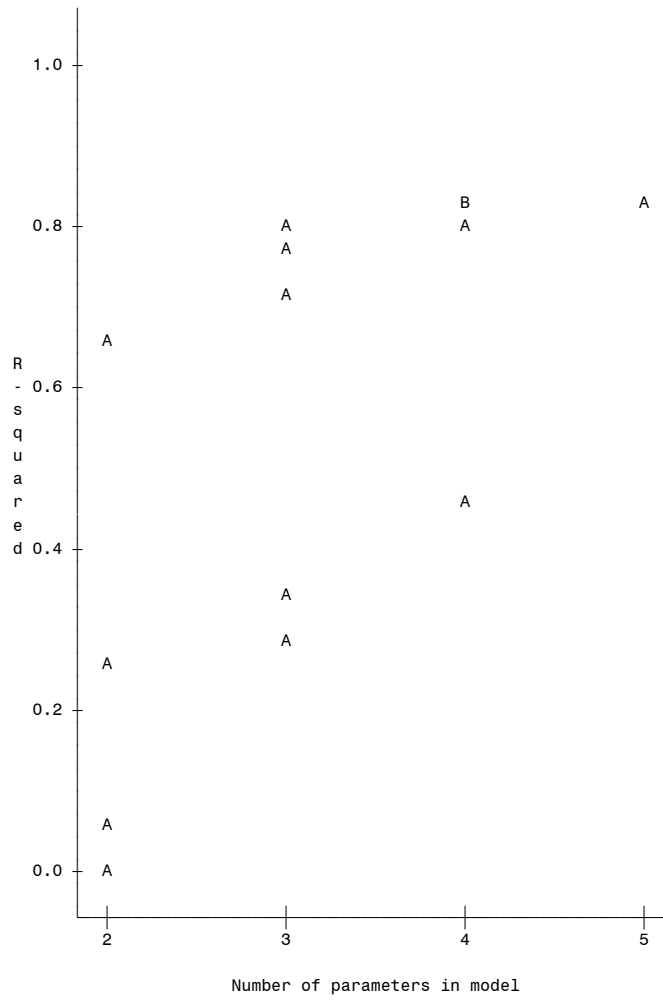
Observations	45
Parameters	5
Error DF	40
MSE	6.4479
R-Square	0.836
Adj R-Square	0.8196

The REG Procedure
Model: MODEL1
Dependent Variable: CRIME



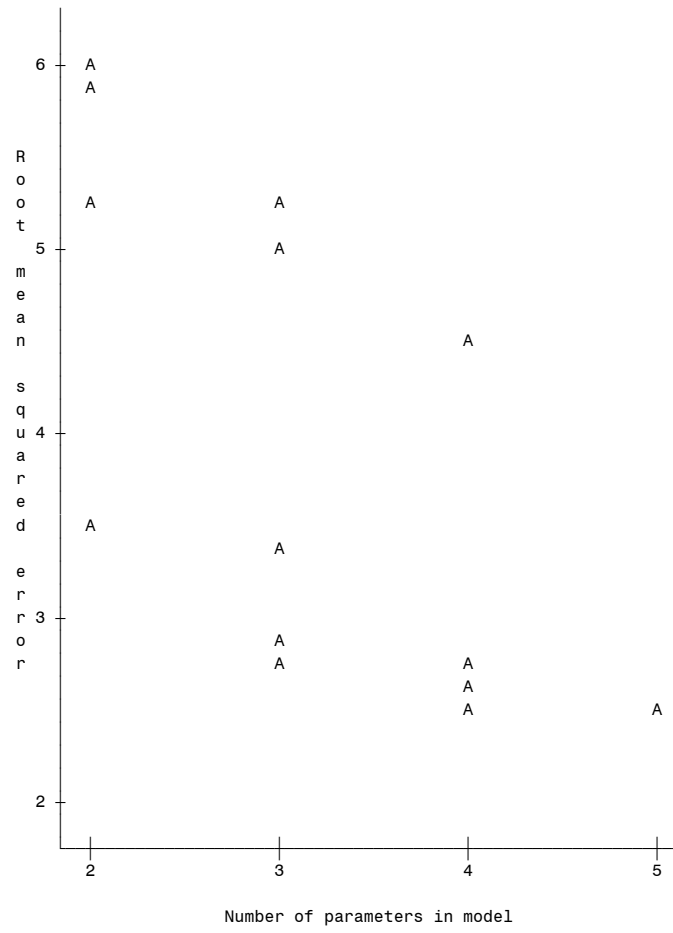
Problem 13.3

Plot of $RSQ_P_$. Legend: A = 1 obs, B = 2 obs, etc.



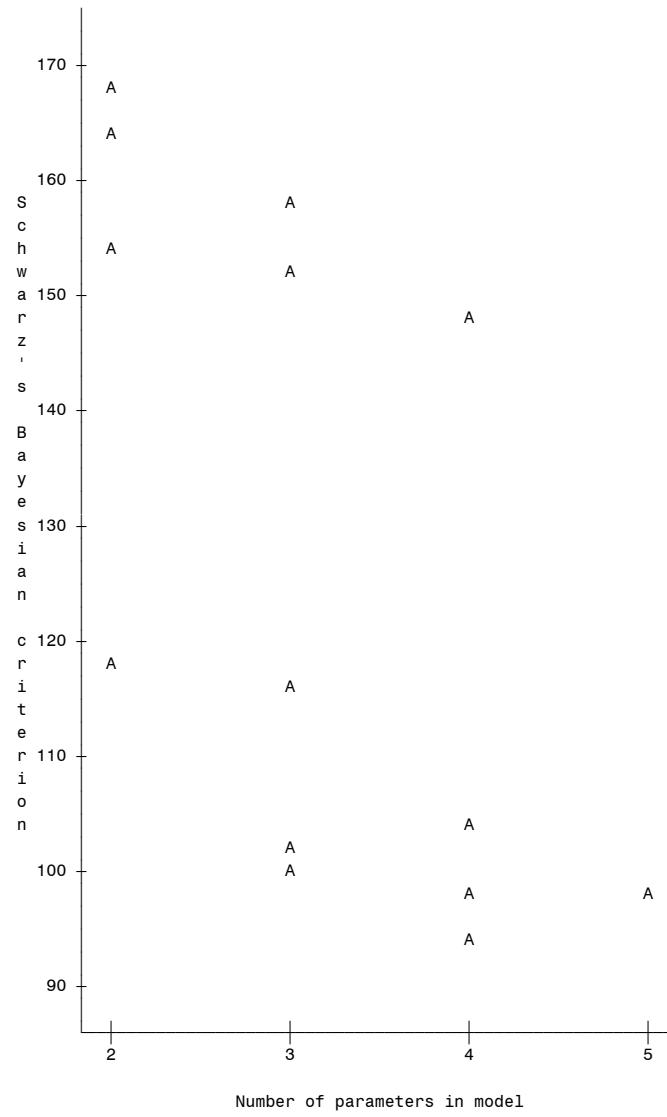
Problem 13.3

Plot of `_RMSE*_P_`. Legend: A = 1 obs, B = 2 obs, etc.



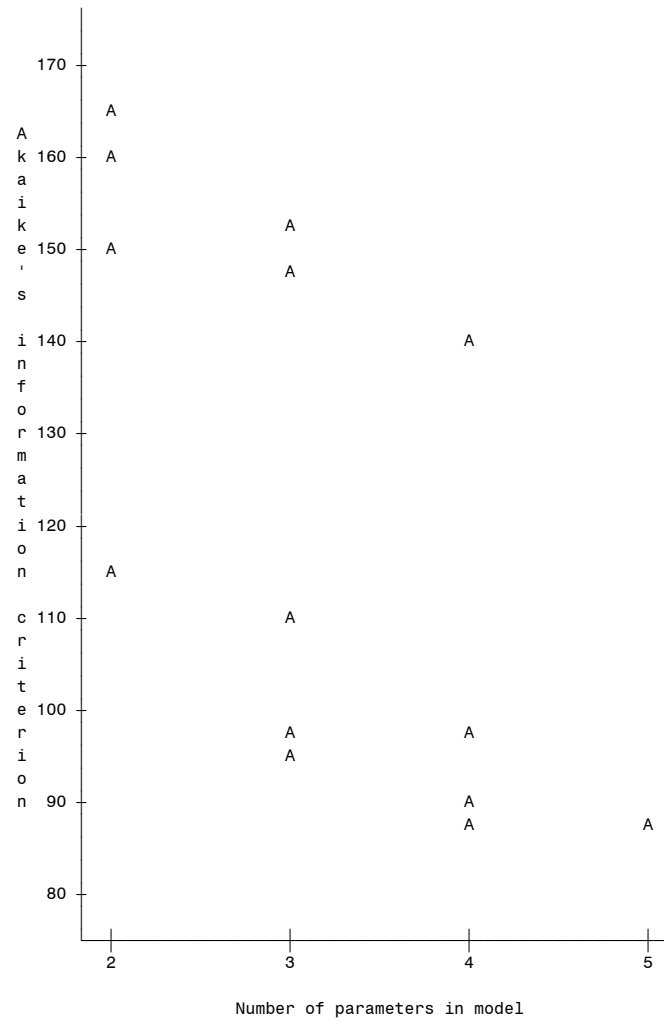
Problem 13.3

Plot of `_SBC*_P_`. Legend: A = 1 obs, B = 2 obs, etc.



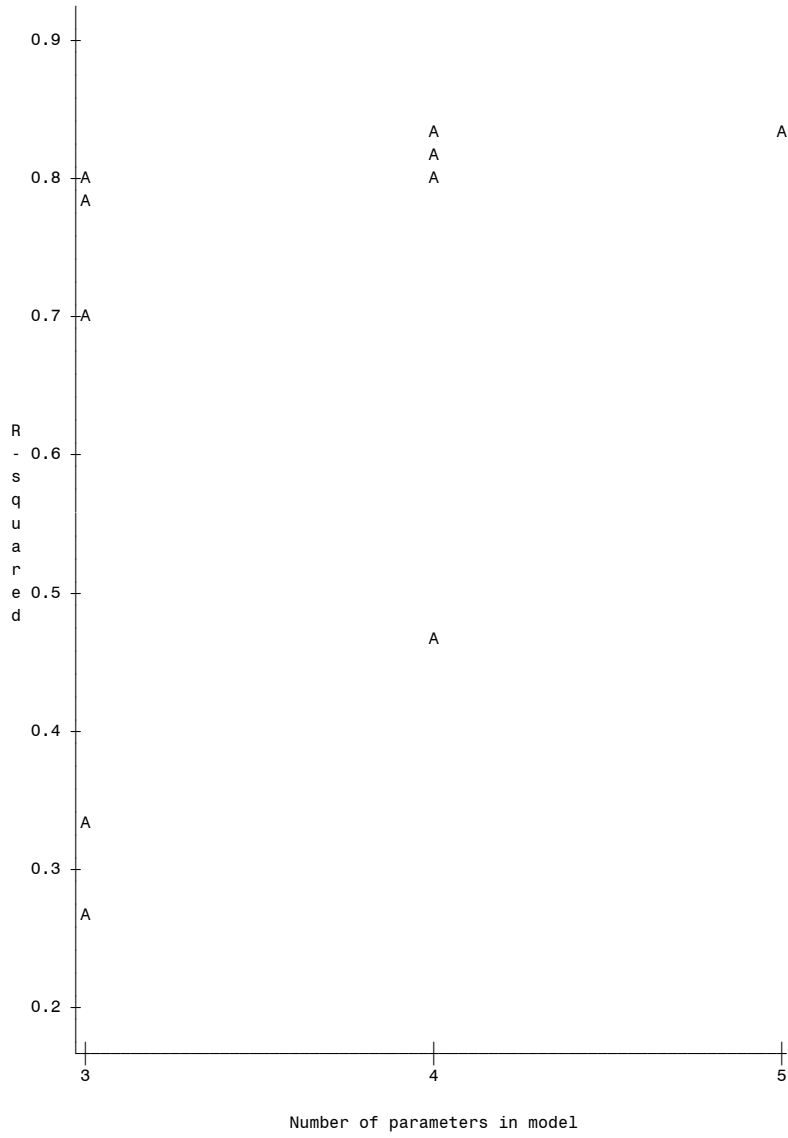
Problem 13.3

Plot of $_{AIC}^*P$. Legend: A = 1 obs, B = 2 obs, etc.



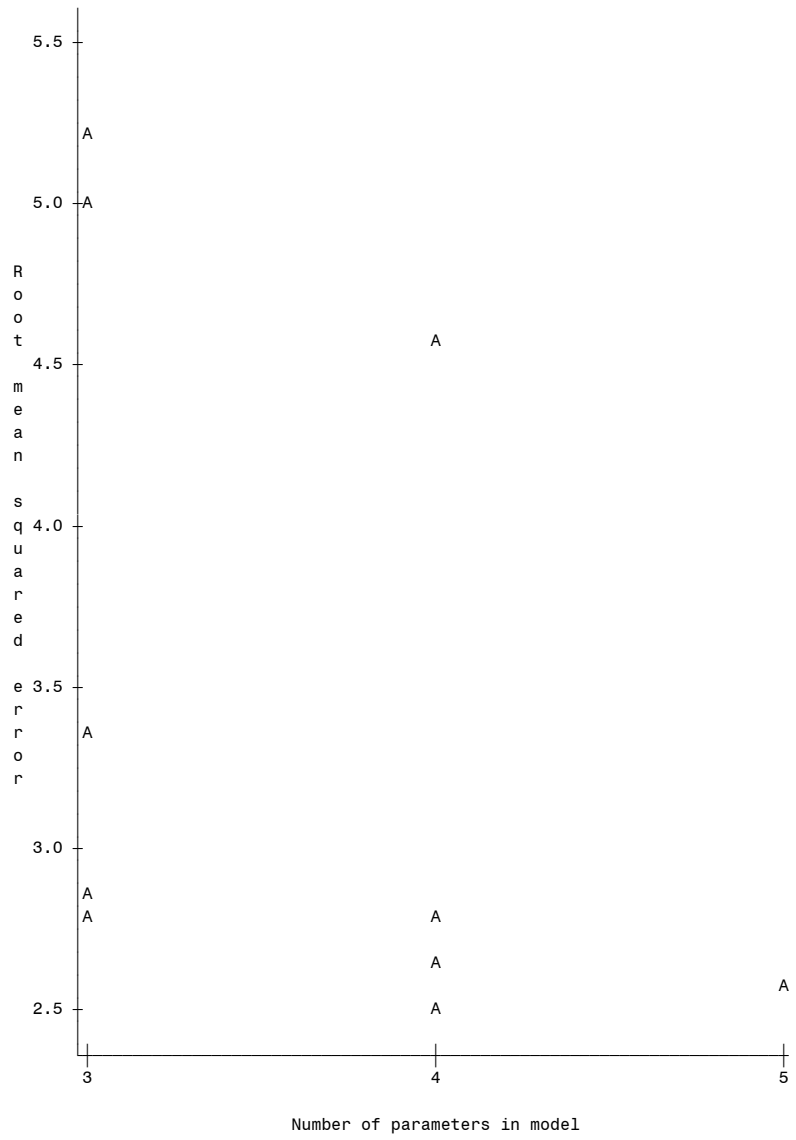
Problem 13.3

Plot of $RSQ_P_P_$. Legend: A = 1 obs, B = 2 obs, etc.



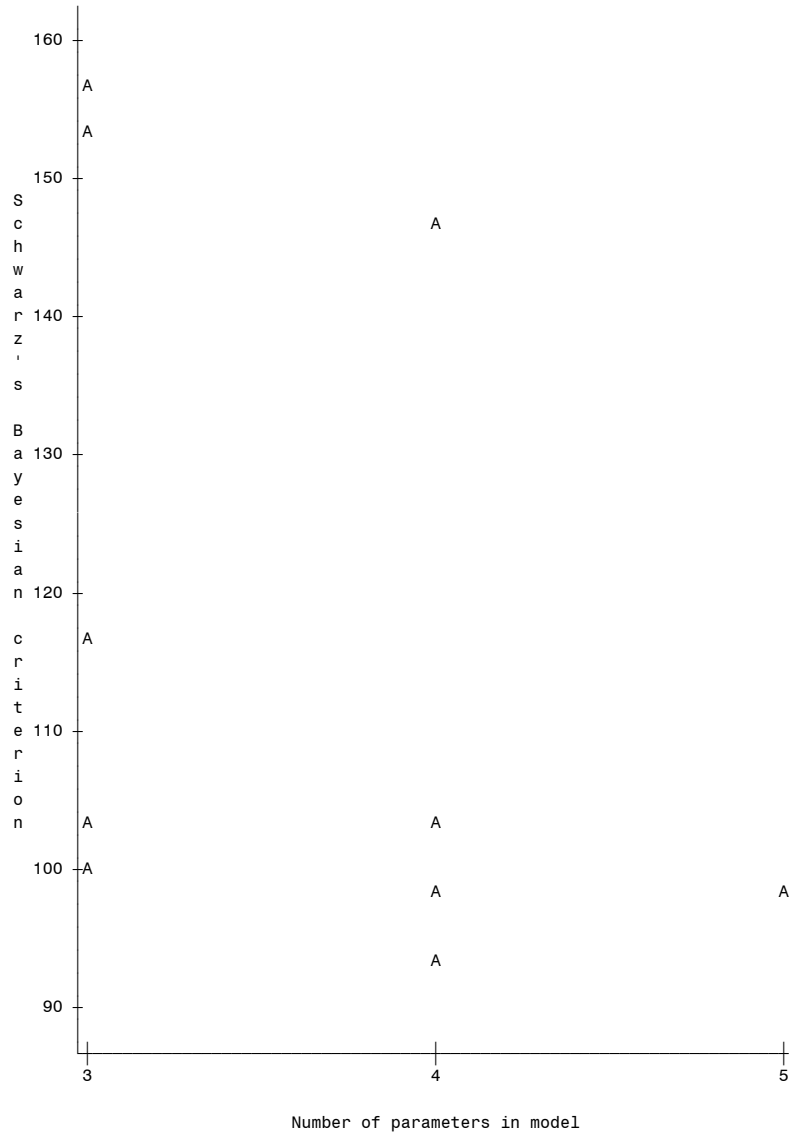
Problem 13.3

Plot of `_RMSE*_P_`. Legend: A = 1 obs, B = 2 obs, etc.



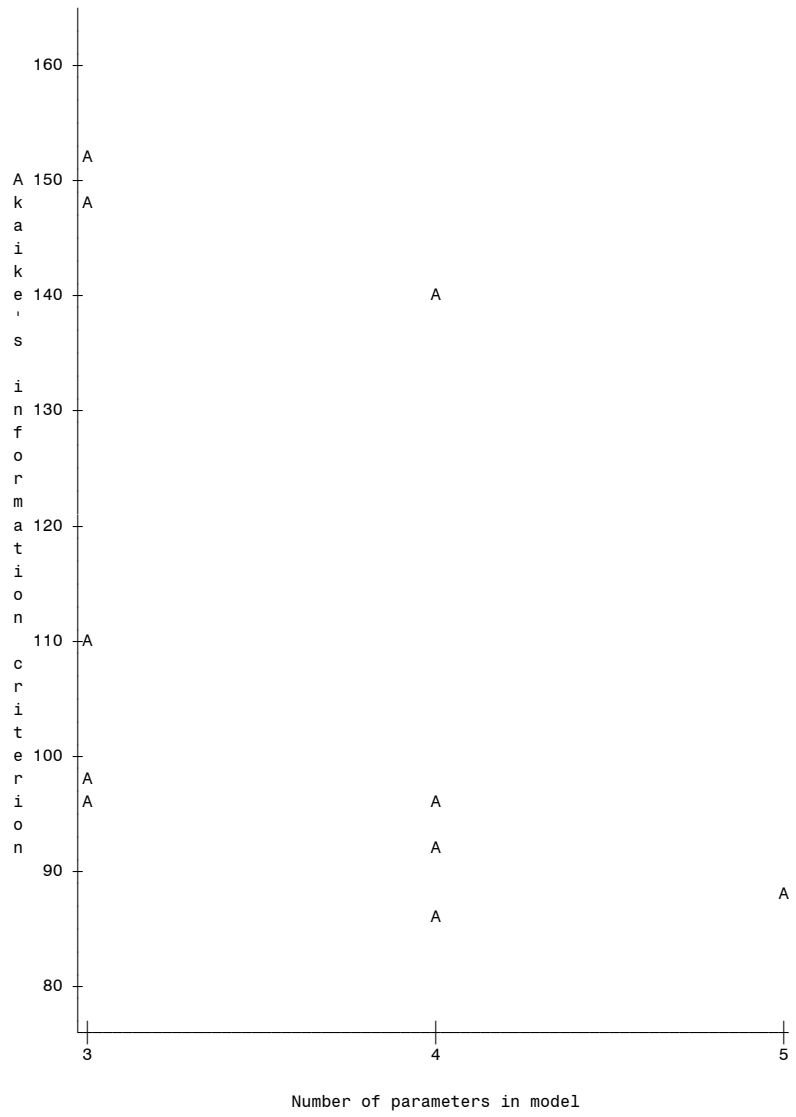
Problem 13.3

Plot of `_SBC*_P_`. Legend: A = 1 obs, B = 2 obs, etc.



Problem 13.3

Plot of `_AIC*_P_`. Legend: A = 1 obs, B = 2 obs, etc.



Problem 13.3

The REG Procedure
Model: MODEL1
Dependent Variable: CRIME

Number of Observations Read	45
Number of Observations Used	45

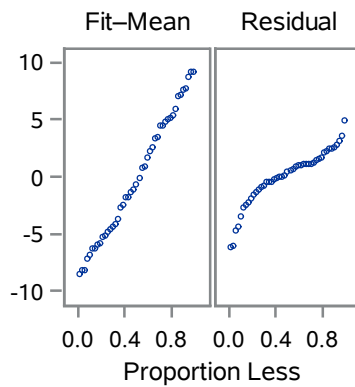
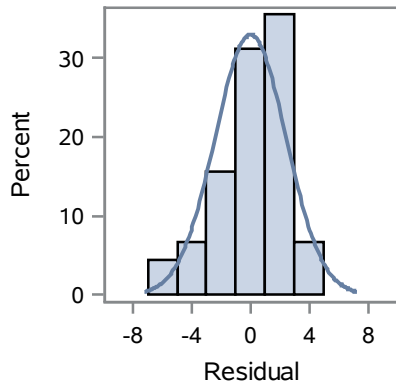
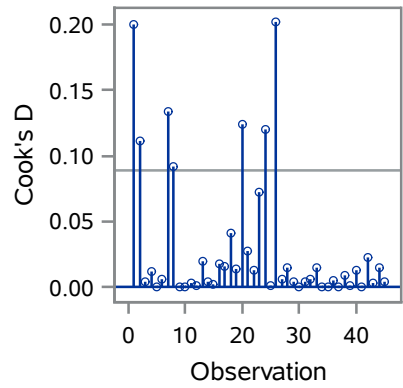
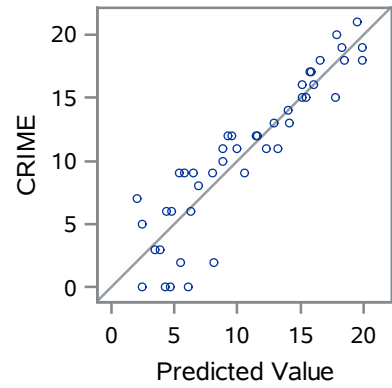
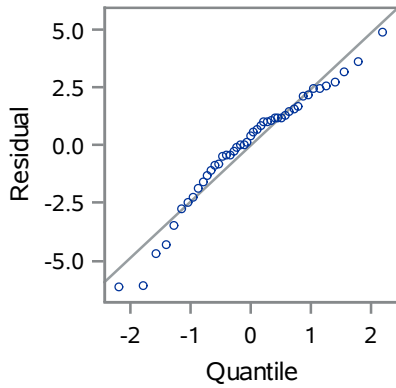
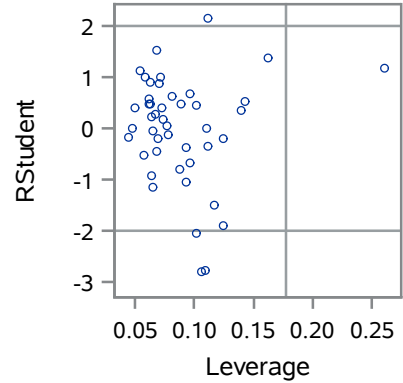
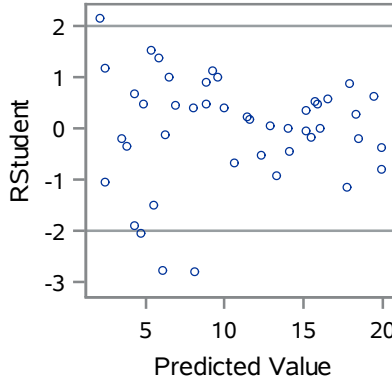
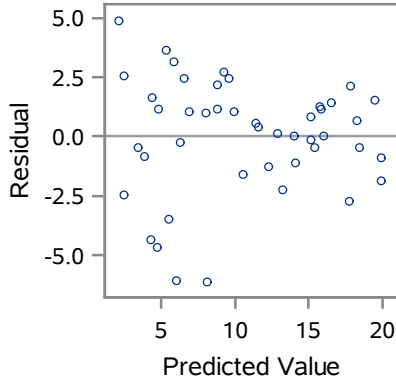
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	1314.20264	438.06755	69.59	<.0001
Error	41	258.10847	6.29533		
Corrected Total	44	1572.31111			

Root MSE	2.50905	R-Square	0.8358
Dependent Mean	10.64444	Adj R-Sq	0.8238
Coeff Var	23.57144		

Parameter Estimates						
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t	Variance Inflation
Intercept	1	41.65231	2.63367	15.82	<.0001	0
A	1	-0.43562	0.07624	-5.71	<.0001	1.01954
I	1	-0.28683	0.02575	-11.14	<.0001	1.20849
G	1	-2.72854	0.83335	-3.27	0.0022	1.19140

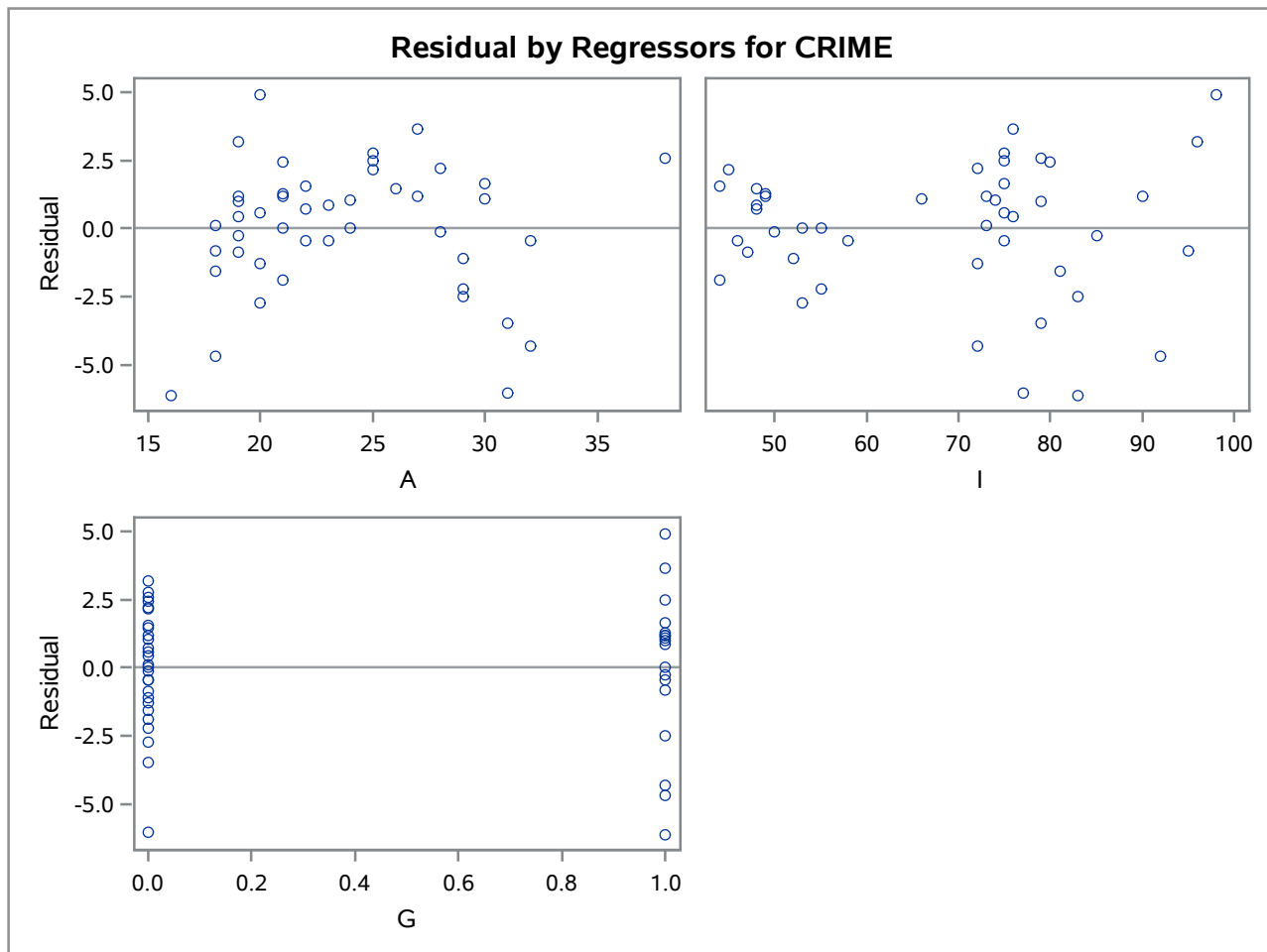
The REG Procedure
 Model: MODEL1
 Dependent Variable: CRIME

Fit Diagnostics for CRIME



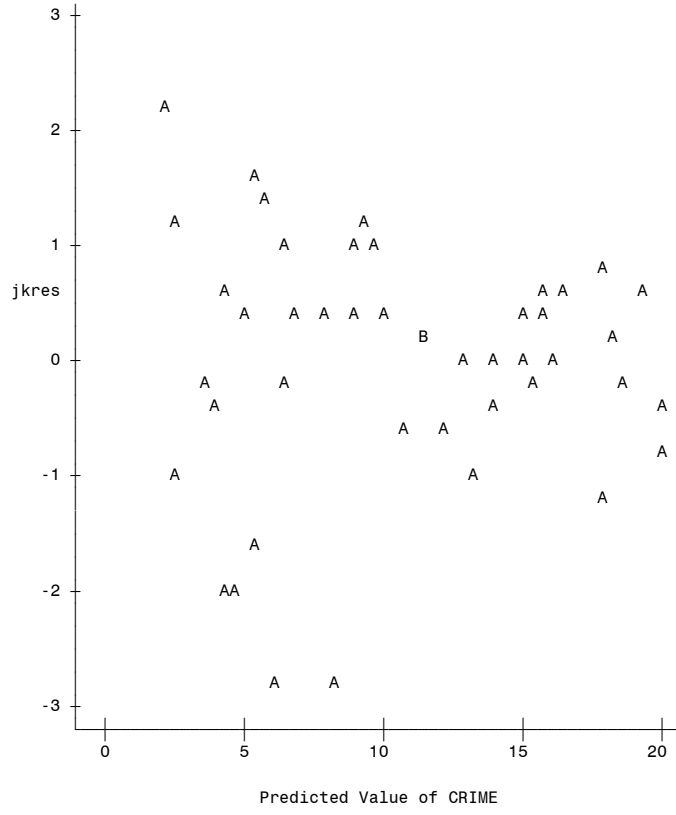
Observations	45
Parameters	4
Error DF	41
MSE	6.2953
R-Square	0.8358
Adj R-Square	0.8238

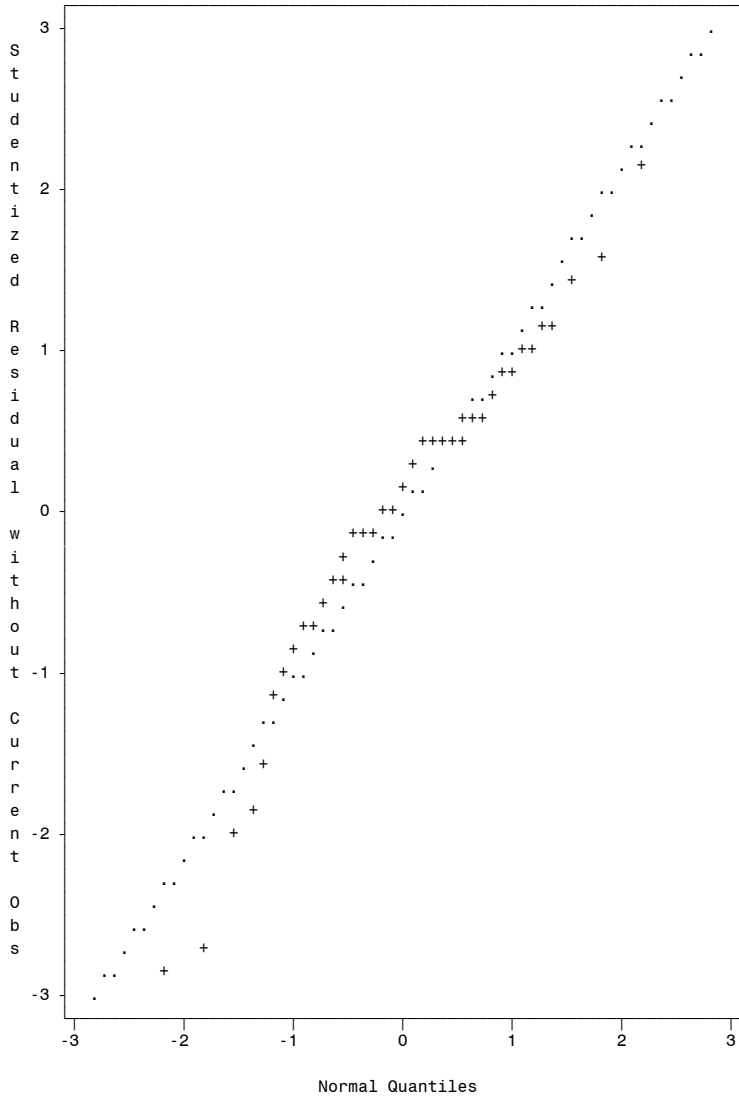
The REG Procedure
Model: MODEL1
Dependent Variable: CRIME



Problem 13.3

Plot of jkres*pred. Legend: A = 1 obs, B = 2 obs, etc.





Normal Line: ... Mu=-0.01, Sigma=1.0553
Observations: + (6 Hidden)