

```

/* SAS program to perform linear regression. Data */
/* are observations of Old Faithful Geyser in    */
/* Yellowstone National Park. Predictor variable */
/* x = duration in minutes of present eruption;  */
/* response variable y = time in minutes until next */
/* eruption.                                     */
/*          *****                               */
/* PROC GPLOT used for improved quality graphics. */

```

```
options nocenter ls=72;
```

```
data;
```

```
input x y;
```

```
cards;
```

```
1.80 56
```

```
1.82 58
```

```
1.88 60
```

```
1.90 62
```

```
1.92 60
```

```
1.93 56
```

```
1.98 57
```

```
2.03 60
```

```
2.05 57
```

```
2.13 60
```

```
2.30 57
```

```
2.35 57
```

```
2.37 61
```

```
2.82 73
```

```
3.13 76
```

```
3.27 77
```

```
3.65 77
```

```
3.70 82
```

```
3.78 79
```

```
3.83 85
```

```
3.87 81
```

```
3.88 80
```

```
4.10 89
```

```
4.27 90
```

```
4.30 84
```

```
4.30 89
```

```
4.43 84
```

```
4.43 89
```

```
4.47 86
```

```
4.47 80
```

```
4.53 89
```

```
4.55 86
```

```
4.60 88
```

```
4.60 92
```

```
4.63 91
```

```
;
```

```
proc reg;
```

```
model y=x / influence;
```

```
output out=new predicted=yhat residual=res
```

```
195m=mulo u95m=muhi 195=pylo u95=pyhi;
```

```
proc sort;
```

```
by x;
```

```

symbol1 v=circle i=none c=black;
symbol2 v=none l=1 i=join c=black;
symbol3 v=none l=2 i=join c=black;
symbol4 v=none l=3 i=join c=black;
proc gplot;
    plot res*yhat=1;
    plot y*x=1 yhat*x=2 mulo*x=3 muhi*x=3 pylo*x=4 pyhi*x=4 /overlay;
run;

```

The REG Procedure

Model: MODEL1

Dependent Variable: y

Number of Observations Read 35
 Number of Observations Used 35

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	5600.35710	5600.35710	521.50	<.0001
Error	33	354.38575	10.73896		
Corrected Total	34	5954.74286			

Root MSE	3.27704	R-Square	0.9405
Dependent Mean	74.51429	Adj R-Sq	0.9387
Coeff Var	4.39786		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	35.30117	1.80427	19.57	<.0001
x	1	11.82441	0.51779	22.84	<.0001

Model: MODEL1

Dependent Variable: y

Obs	Residual	Output Statistics			
		RStudent	Hat Diag H	Cov Ratio	DFFITS
1	-0.5851	-0.1840	0.0860	1.1610	-0.0564
2	1.1784	0.3709	0.0845	1.1517	0.1126
3	2.4689	0.7809	0.0801	1.1132	0.2304
4	4.2325	1.3629	0.0786	1.0311	0.3982
5	1.9960	0.6282	0.0772	1.1246	0.1818
6	-2.1223	-0.6683	0.0766	1.1202	-0.1924
7	-1.7135	-0.5372	0.0732	1.1270	-0.1509
8	0.6953	0.2168	0.0699	1.1400	0.0594
9	-2.5412	-0.7991	0.0686	1.0976	-0.2169
10	-0.4872	-0.1513	0.0637	1.1342	-0.0395
11	-5.4973	-1.7809	0.0544	0.9309	-0.4270
12	-6.0885	-1.9921	0.0519	0.8878	-0.4660
13	-2.3250	-0.7230	0.0509	1.0848	-0.1675
14	4.3540	1.3702	0.0347	0.9830	0.2599
15	3.6884	1.1480	0.0294	1.0108	0.1999
16	3.0330	0.9373	0.0286	1.0371	0.1609
17	-1.4603	-0.4472	0.0314	1.0843	-0.0805
18	2.9485	0.9123	0.0322	1.0439	0.1665
19	-0.9974	-0.3054	0.0339	1.0945	-0.0572
20	4.4113	1.3896	0.0352	0.9803	0.2653
21	-0.0616	-0.0189	0.0362	1.1034	-0.0037
22	-1.1799	-0.3619	0.0365	1.0948	-0.0705
23	5.2188	1.6724	0.0439	0.9407	0.3584
24	4.2086	1.3340	0.0513	1.0060	0.3101
25	-2.1461	-0.6672	0.0527	1.0921	-0.1574
26	2.8539	0.8920	0.0527	1.0689	0.2105
27	-3.6833	-1.1653	0.0595	1.0406	-0.2932
28	1.3167	0.4091	0.0595	1.1191	0.1029
29	-2.1563	-0.6737	0.0618	1.1020	-0.1729
30	-8.1563	-2.8292	0.0618	0.7253	-0.7261
31	0.1343	0.0417	0.0653	1.1377	0.0110
32	-3.1022	-0.9792	0.0666	1.0740	-0.2615
33	-1.6934	-0.5299	0.0697	1.1234	-0.1451
34	2.3066	0.7245	0.0697	1.1066	0.1983
35	0.9518	0.2973	0.0717	1.1393	0.0826

Output Statistics

Obs	-----DFBETAS-----	
	Intercept	x
1	-0.0539	0.0461
2	0.1073	-0.0916
3	0.2181	-0.1848
4	0.3761	-0.3177
5	0.1713	-0.1443
6	-0.1811	0.1523
7	-0.1411	0.1178
8	0.0551	-0.0457
9	-0.2006	0.1657
10	-0.0360	0.0293
11	-0.3749	0.2941
12	-0.4034	0.3124
13	-0.1441	0.1110
14	0.1764	-0.1094
15	0.0931	-0.0343
16	0.0560	-0.0070
17	-0.0008	-0.0240
18	-0.0054	0.0562
19	0.0055	-0.0228
20	-0.0359	0.1148
21	0.0006	-0.0017
22	0.0121	-0.0328
23	-0.1128	0.2118
24	-0.1253	0.2064
25	0.0658	-0.1066
26	-0.0880	0.1425
27	0.1389	-0.2114
28	-0.0488	0.0742
29	0.0846	-0.1268
30	0.3552	-0.5325
31	-0.0056	0.0083
32	0.1354	-0.1976
33	0.0775	-0.1114
34	-0.1060	0.1524
35	-0.0449	0.0640

Sum of Residuals	0
Sum of Squared Residuals	354.38575
Predicted Residual SS (PRESS)	396.04471



