

Obs	v1	v2	y
1	180	180	158
2	220	180	168
3	180	220	176
4	220	220	182
5	200	200	175
6	200	200	174
7	200	200	171
8	200	200	173

The RSREG Procedure

Response Surface for Variable y	
Response Mean	172.125000
Root MSE	2.138925
R-Square	0.9333
Coefficient of Variation	1.2427

Regression	DF	Type I Sum of Squares	R-Square	F Value	Pr > F
Covariates	2	320.000000	0.9333	34.97	0.0011
Linear	0	0	0.0000	.	.
Quadratic	0	0	0.0000	.	.
Crossproduct	0	0	0.0000	.	.
Total Model	2	320.000000	0.9333	34.97	0.0011

Residual	DF	Sum of Squares	Mean Square	F Value	Pr > F
Lack of Fit	2	14.125000	7.062500	2.42	0.2366
Pure Error	3	8.750000	2.916667		
Total Error	5	22.875000	4.575000		

Parameter	DF	Estimate	Standard Error	t Value	Pr > t	Parameter Estimate from Coded Data
Intercept	1	52.125000	15.143377	3.44	0.0184	52.125000
v1	1	0.200000	0.053473	3.74	0.0134	0.200000
v2	1	0.400000	0.053473	7.48	0.0007	0.400000

Obs	v1	v2	y
1	200	220	179
2	240	220	184
3	200	260	190
4	240	260	184
5	220	240	192
6	220	240	189
7	220	240	190
8	220	240	188

The RSREG Procedure

Response Surface for Variable y	
Response Mean	187.000000
Root MSE	4.460942
R-Square	0.2346
Coefficient of Variation	2.3855

Regression	DF	Type I Sum of Squares	R-Square	F Value	Pr > F
Covariates	2	30.500000	0.2346	0.77	0.5125
Linear	0	0	0.0000	.	.
Quadratic	0	0	0.0000	.	.
Crossproduct	0	0	0.0000	.	.
Total Model	2	30.500000	0.2346	0.77	0.5125

Residual	DF	Sum of Squares	Mean Square	F Value	Pr > F
Lack of Fit	2	90.750000	45.375000	15.56	0.0261
Pure Error	3	8.750000	2.916667		
Total Error	5	99.500000	19.900000		

Parameter	DF	Estimate	Standard Error	t Value	Pr > t	Parameter Estimate from Coded Data
Intercept	1	156.750000	36.343672	4.31	0.0076	156.750000
v1	1	-0.012500	0.111524	-0.11	0.9151	-0.012500
v2	1	0.137500	0.111524	1.23	0.2724	0.137500

Obs	v1	v2	y
1	200	220	179
2	240	220	184
3	200	260	190
4	240	260	184
5	248	240	184
6	192	240	185
7	220	268	190
8	220	212	179
9	220	240	192
10	220	240	189
11	220	240	190
12	220	240	188
13	220	240	188

The RSREG Procedure

Coding Coefficients for the Independent Variables		
Factor	Subtracted off	Divided by
v1	220.000000	28.000000
v2	240.000000	28.000000

Response Surface for Variable y	
Response Mean	186.307692
Root MSE	1.415062
R-Square	0.9335
Coefficient of Variation	0.7595

Regression	DF	Type I Sum of Squares	R-Square	F Value	Pr > F
Linear	2	88.727273	0.4210	22.16	0.0009
Quadratic	2	77.775147	0.3690	19.42	0.0014
Crossproduct	1	30.250000	0.1435	15.11	0.0060
Total Model	5	196.752420	0.9335	19.65	0.0005

Residual	DF	Sum of Squares	Mean Square	F Value	Pr > F
Lack of Fit	3	2.816811	0.938937	0.34	0.8019
Pure Error	4	11.200000	2.800000		
Total Error	7	14.016811	2.002402		

Parameter	DF	Estimate	Standard Error	t Value	Pr > t	Parameter Estimate from Coded Data
Intercept	1	-883.064235	142.848793	-6.18	0.0005	189.401200
v1	1	4.427598	0.734390	6.03	0.0005	-0.424242
v2	1	4.725803	0.760714	6.21	0.0004	4.666667
v1*v1	1	-0.006347	0.001361	-4.66	0.0023	-4.976172
v2*v1	1	-0.006875	0.001769	-3.89	0.0060	-5.390000
v2*v2	1	-0.006347	0.001361	-4.66	0.0023	-4.976172

Factor	DF	Sum of Squares	Mean Square	F Value	Pr > F
v1	3	74.543470	24.847823	12.41	0.0034
v2	3	161.816198	53.938733	26.94	0.0003

The RSREG Procedure
Canonical Analysis of Response Surface Based on Coded Data

Factor	Critical Value	
	Coded	Uncoded
v1	-0.419668	208.249289
v2	0.696186	259.493197
Predicted value at stationary point: 191.114653		

Eigenvalues	Eigenvectors	
	v1	v2
-2.281172	0.707107	-0.707107
-7.671172	0.707107	0.707107
Stationary point is a maximum.		

