using Fe, Pb, Zn, Fe², Pb² & Zn²

000517

```
/input var=5.
 title= 'STEPWISE LINEAR REGRESSION ON SPECIFIC GRAVITY FARO90 DATA.'.
   format= free.
  file ='faro90sg.dat'.
/var names are smpnbr,pb,zn,fe,sg.
label=smpnbr.
add=new.
/transform
fesq=fe*fe.
znsq=zn*zn.
pbsq=pb*pb.
/regress dependent=sg.
/plot
resid.
norm.
var=fe,pb,zn,pbsq.
file='faro90sg.plt'.
/end
NUMBER OF CASES READ. . . . . .  133
```

NO.	VARIABLE NAME	MEAN	STANDARD DEVIATION	COEFFICIENT OF VARIATION	SMALLEST VALUE	LARGEST VALUE
2	pb	2.1620	2.3233	1.074597	0.0200	11.7000
3	zn	3.9241	3.8828	0.989490	0.0200	19.9000
4	fe	21.6200	9.9081	0.458282	1.6500	41.5300
5	sg	3.7853	0.5682	0.150119	2.7700	4.8900
6	fesq	564.8557	364.8528	0.645922	2.7225	1724.7410
7	znsq	30.3612	57.2344	1.885119	0.0004	396.0100
8	pbsq	10.0316	19.3212	1.926043	0.0004	136.8900

```
STEP NO.    0
--------------

STD. ERROR OF EST.     0.5682

ANALYSIS OF VARIANCE
                   SUM OF SQUARES     DF    MEAN SQUARE
       RESIDUAL     42.622330        132  0.3228964
```

VARIABLES IN EQUATION					VARIABLES NOT IN EQUATION			
VARIABLE	COEFF.	STD.ERR OF COEFF	TOL.	F REMOVE(L)	VARIABLE	PARTIAL CORR.	TOL.	F ENTER(L)
(CONSTANT	3.7853)							
					pb	0.3990	1.0000	24.81(1)
					zn	0.3813	1.0000	22.29(1)
					fe	0.9083	1.0000	617.55(1)
					fesq	0.8782	1.0000	441.56(1)
					znsq	0.2722	1.0000	10.48(1)
					pbsq	0.2919	1.0000	12.21(1)

```
 ENTER VARIABLE TO MOVE NEXT :
!V to View Output; ENTER to accept: fe      --->


STEP NO.    1
--------------
VARIABLE ENTERED    4 fe

MULTIPLE R            0.9083
MULTIPLE R-SQUARE     0.8250
ADJUSTED R-SQUARE     0.8237

STD. ERROR OF EST.    0.2386
```

ANALYSIS OF VARIANCE

	SUM OF SQUARES	DF	MEAN SQUARE	F RATIO
REGRESSION	35.163230	1	35.16323	617.55
RESIDUAL	7.4590990	131	0.5693969E-01	

VARIABLES IN EQUATION					VARIABLES NOT IN EQUATION			
VARIABLE	COEFF.	STD.ERR OF COEFF	TOL.	F REMOVE(L)	VARIABLE	PARTIAL CORR.	TOL.	F ENTER(L)
(CONSTANT	2.6590)							
fe	0.521E-01	0.21E-02	1.0000	617.55(1)	pb	0.6994	0.9857	124.51(1)
					zn	0.7083	0.9910	130.90(1)
					fesq	-0.0854	0.0484	0.95(1)
					znsq	0.6019	0.9995	73.86(1)
					pbsq	0.5705	0.9965	62.72(1)

ENTER VARIABLE TO MOVE NEXT :
!V to View Output; ENTER to accept: zn --->

STEP NO. 2

VARIABLE ENTERED 3 zn

MULTIPLE R 0.9554
MULTIPLE R-SQUARE 0.9128
ADJUSTED R-SQUARE 0.9115

STD. ERROR OF EST. 0.1691

ANALYSIS OF VARIANCE

	SUM OF SQUARES	DF	MEAN SQUARE	F RATIO
REGRESSION	38.905650	2	19.45283	680.41
RESIDUAL	3.7166730	130	0.2858979E-01	

VARIABLES IN EQUATION					VARIABLES NOT IN EQUATION			
VARIABLE	COEFF.	STD.ERR OF COEFF	TOL.	F REMOVE(L)	VARIABLE	PARTIAL CORR.	TOL.	F ENTER(L)
(CONSTANT	2.5232)							
zn	0.436E-01	0.38E-02	0.9910	130.90(1)	pb	0.3110	0.3508	13.81(1)
fe	0.505E-01	0.15E-02	0.9910	1144.02(1)	fesq	0.1248	0.0456	2.04(1)
					znsq	-0.2487	0.1227	8.51(1)
					pbsq	0.1628	0.5254	3.51(1)

ENTER VARIABLE TO MOVE NEXT :
!V to View Output; ENTER to accept: pb --->

STEP NO. 3

VARIABLE ENTERED 2 pb

MULTIPLE R 0.9598
MULTIPLE R-SQUARE 0.9212
ADJUSTED R-SQUARE 0.9194

STD. ERROR OF EST. 0.1613

ANALYSIS OF VARIANCE

	SUM OF SQUARES	DF	MEAN SQUARE	F RATIO
REGRESSION	39.265160	3	13.08839	502.92
RESIDUAL	3.3571730	129	0.2602460E-01	

VARIABLES IN EQUATION					VARIABLES NOT IN EQUATION			
VARIABLE	COEFF.	STD.ERR OF COEFF	TOL.	F REMOVE(L)	VARIABLE	PARTIAL CORR.	TOL.	F ENTER(L)
(CONSTANT	2.5208)							
pb	0.0379	0.0102	0.3508	13.81(1)	fesq	0.0802	0.0444	0.83(1)
zn	0.254E-01	0.61E-02	0.3527	17.40(1)	znsq	-0.1965	0.1171	5.14(1)
fe	0.501E-01	0.14E-02	0.9857	1231.12(1)	pbsq	-0.2288	0.1285	7.07(1)

ENTER VARIABLE TO MOVE NEXT :
!V to View Output; ENTER to accept: pbsq ---->

STEP NO. 4

VARIABLE ENTERED 8 pbsq

MULTIPLE R 0.9620
MULTIPLE R-SQUARE 0.9254
ADJUSTED R-SQUARE 0.9230

STD. ERROR OF EST. 0.1577

ANALYSIS OF VARIANCE

	SUM OF SQUARES	DF	MEAN SQUARE	F RATIO
REGRESSION	39.440900	4	9.860224	396.71
RESIDUAL	3.1814310	128	0.2485493E-01	

VARIABLES IN EQUATION					VARIABLES NOT IN EQUATION			
VARIABLE	COEFF.	STD.ERR OF COEFF	TOL.	F REMOVE(L)	VARIABLE	PARTIAL CORR.	TOL.	F ENTER(L)
(CONSTANT	2.5012)							
pb	0.0845	0.0202	0.0858	17.57(1)	fesq	0.0659	0.0442	0.55(1)
zn	0.212E-01	0.62E-02	0.3290	11.79(1)	znsq	-0.1173	0.0982	1.77(1)
fe	0.495E-01	0.14E-02	0.9653	1235.24(1)				
pbsq	-0.527E-02	0.20E-02	0.1285	7.07(1)				

ENTER VARIABLE TO MOVE NEXT :
!V to View Output; ENTER to accept: NONE --->

***** F LEVELS(4.000, 3.900) OR TOLERANCE INSUFFICIENT FOR FURTHER STEPPING

STEPWISE REGRESSION COEFFICIENTS

VARIABLES	0 Y-INTCPT	2 pb	3 zn	4 fe	6 fesq
STEP					
0	3.7853*	0.0976	0.0558	0.0521	0.0014
1	2.6590*	0.0721	0.0436	0.0521*	-0.0003
2	2.5232*	0.0379	0.0436*	0.0505*	0.0003
3	2.5208*	0.0379*	0.0254*	0.0501*	0.0002
4	2.5012*	0.0845*	0.0212*	0.0495*	0.0001

VARIABLES	7 znsq	8 pbsq
STEP		
0	0.0027	0.0086
1	0.0025	0.0070
2	-0.0021	0.0020
3	-0.0016	-0.0053
4	-0.0010	-0.0053*

SUMMARY TABLE

STEP NO.	VARIABLE ENTERED	VARIABLE REMOVED	MULTIPLE R	MULTIPLE RSQ	CHANGE IN RSQ	F TO ENTER	F TO REMOVE	NO.OF VAR. INCLUDED
1	4 fe		0.9083	0.8250	0.8250	617.55		1
2	3 zn		0.9554	0.9128	0.0878	130.90		2
3	2 pb		0.9598	0.9212	0.0084	13.81		3
4	8 pbsq		0.9620	0.9254	0.0041	7.07		4