```
options ls=80 nocenter nodate pageno=1 ps=90;

data indat;
array x x1-x8;
x1 = 57;
x2 = 49;
x3 = 30;
x4 = 21;
x5 = 38;
x6 = 34;
x7 = 33;
x8 = 35;
sum = 0;
do i = 1 to 8;
  sum = sum + x[i];
 end;
do i1 = 1 to 8;
do i2 = i1+1 to 8;
do i3 = i2+1 to 8;
do i4 = i3+1 to 8;
xx1 = x[i1];
xx2 = x[i2];
xx3 = x[i3];
xx4 = x[i4];
x1sum = xx1+xx2+xx3+xx4;
x1bar = x1sum/4;
x0bar = (sum-x1sum)/4;
delta = x1bar - x0bar;
output;
end; end; end; end;
keep i1 i2 i3 i4 x1bar x0bar delta;

proc print;

proc freq;
table delta;
run;
```

Obs	i1	i2	i3	i4	x1bar	x0bar	delta
1	1	2	3	4	39.25	35.00	4.25
2	1	2	3	5	43.50	30.75	12.75
3	1	2	3	6	42.50	31.75	10.75
4	1	2	3	7	42.25	32.00	10.25
5	1	2	3	8	42.75	31.50	11.25
6	1	2	4	5	41.25	33.00	8.25
7	1	2	4	6	40.25	34.00	6.25
8	1	2	4	7	40.00	34.25	5.75
9	1	2	4	8	40.50	33.75	6.75
10	1	2	5	6	44.50	29.75	14.75
11	1	2	5	7	44.25	30.00	14.25
12	1	2	5	8	44.75	29.50	15.25
13	1	2	6	7	43.25	31.00	12.25
14	1	2	6	8	43.75	30.50	13.25
15	1	2	7	8	43.50	30.75	12.75
16	1	3	4	5	36.50	37.75	-1.25
17	1	3	4	6	35.50	38.75	-3.25
18	1	3	4	7	35.25	39.00	-3.75
19	1	3	4	8	35.75	38.50	-2.75
20	1	3	5	6	39.75	34.50	5.25
21	1	3	5	7	39.50	34.75	4.75
22	1	3	5	8	40.00	34.25	5.75
23	1	3	6	7	38.50	35.75	2.75
24	1	3	6	8	39.00	35.25	3.75
25	1	3	7	8	38.75	35.50	3.25
26	1	4	5	6	37.50	36.75	0.75
27	1	4	5	7	37.25	37.00	0.25
28	1	4	5	8	37.75	36.50	1.25
29	1	4	6	7	36.25	38.00	-1.75
30	1	4	6	8	36.75	37.50	-0.75
31	1	4	7	8	36.50	37.75	-1.25
32	1	5	6	7	40.50	33.75	6.75
33	1	5	6	8	41.00	33.25	7.75
34	1	5	7	8	40.75	33.50	7.25
35	1	6	7	8	39.75	34.50	5.25
36	2	3	4	5	34.50	39.75	-5.25
37	2	3	4	6	33.50	40.75	-7.25
38	2	3	4	7	33.25	41.00	-7.75
39	2	3	4	8	33.75	40.50	-6.75
40	2	3	5	6	37.75	36.50	1.25
41	2	3	5	7	37.50	36.75	0.75
42	2	3	5	8	38.00	36.25	1.75
43	2	3	6	7	36.50	37.75	-1.25
44	2	3	6	8	37.00	37.25	-0.25
45	2	3	7	8	36.75	37.50	-0.75
46	2	4	5	6	35.50	38.75	-3.25
47	2	4	5	7	35.25	39.00	-3.75
48	2	4	5	8	35.75	38.50	-2.75
49	2	4	6	7	34.25	40.00	-5.75
50	2	4	6	8	34.75	39.50	-4.75
51	2	4	7	8	34.50	39.75	-5.25
52	2	5	6	7	38.50	35.75	2.75
53	2	5	6	8	39.00	35.25	3.75
54	2	5	7	8	38.75	35.50	3.25
55	2	6	7	8	37.75	36.50	1.25
56	3	4	5	6	30.75	43.50	-12.75
57	3	4	5	7	30.50	43.75	-13.25
58	3	4	5	8	31.00	43.25	-12.25
59	3	4	6	7	29.50	44.75	-15.25
60	3	4	6	8	30.00	44.25	-14.25
61	3	4	7	8	29.75	44.50	-14.75
62	3	5	6	7	33.75	40.50	-6.75
63	3	5	6	8	34.25	40.00	-5.75
64	3	5	7	8	34.00	40.25	-6.25
65	3	6	7	8	33.00	41.25	-8.25
66	4	5	6	7	31.50	42.75	-11.25
67	4	5	6	8	32.00	42.25	-10.25
68	4	5	7	8	31.75	42.50	-10.75
69	4	6	7	8	30.75	43.50	-12.75
70	5	6	7	8	35.00	39.25	-4.25

The FREQ Procedure

delta	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-15.25	1	1.43	1	1.43
-14.75	1	1.43	2	2.86
-14.25	1	1.43	3	4.29
-13.25	1	1.43	4	5.71
-12.75	2	2.86	6	8.57
-12.25	1	1.43	7	10.00
-11.25	1	1.43	8	11.43
-10.75	1	1.43	9	12.86
-10.25	1	1.43	10	14.29
-8.25	1	1.43	11	15.71
-7.75	1	1.43	12	17.14
-7.25	1	1.43	13	18.57
-6.75	2	2.86	15	21.43
-6.25	1	1.43	16	22.86
-5.75	2	2.86	18	25.71
-5.25	2	2.86	20	28.57
-4.75	1	1.43	21	30.00
-4.25	1	1.43	22	31.43
-3.75	2	2.86	24	34.29
-3.25	2	2.86	26	37.14
-2.75	2	2.86	28	40.00
-1.75	1	1.43	29	41.43
-1.25	3	4.29	32	45.71
-0.75	2	2.86	34	48.57
-0.25	1	1.43	35	50.00
0.25	1	1.43	36	51.43
0.75	2	2.86	38	54.29
1.25	3	4.29	41	58.57
1.75	1	1.43	42	60.00
2.75	2	2.86	44	62.86
3.25	2	2.86	46	65.71
3.75	2	2.86	48	68.57
4.25	1	1.43	49	70.00
4.75	1	1.43	50	71.43
5.25	2	2.86	52	74.29
5.75	2	2.86	54	77.14
6.25	1	1.43	55	78.57
6.75	2	2.86	57	81.43
7.25	1	1.43	58	82.86
7.75	1	1.43	59	84.29
8.25	1	1.43	60	85.71
10.25	1	1.43	61	87.14
10.75	1	1.43	62	88.57
11.25	1	1.43	63	90.00
12.25	1	1.43	64	91.43
12.75	2	2.86	66	94.29
13.25	1	1.43	67	95.71
14.25	1	1.43	68	97.14
14.75	1	1.43	69	98.57
15.25	1	1.43	70	100.00

```
options ls=80 nocenter nodate pageno=1;

data indat;
input grp y;
cards;
0 57
0 49
0 30
0 21
1 38
1 34
1 33
1 35
;

proc npar1way scores=data;
class grp;
var y;
exact;
run;

proc npar1way scores=data;
class grp;
var y;
exact / mc n=50000;
run;
```

The NPAR1WAY Procedure

Data Scores for Variable y
Classified by Variable grp

grp	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
0	4	157.0	148.50	15.846361	39.250
1	4	140.0	148.50	15.846361	35.000

Data Scores Two-Sample Test

Statistic (S)	157.0000
Normal Approximation	
Z	0.5364
One-Sided Pr > Z	0.2958
Two-Sided Pr > |Z|	0.5917
Exact Test	
One-Sided Pr >= S	0.3143
Two-Sided Pr >= |S - Mean|	0.6286

Data Scores One-Way Analysis

Chi-Square	0.2877
DF	1
Pr > Chi-Square	0.5917

The NPAR1WAY Procedure

Data Scores for Variable y
Classified by Variable grp

grp	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
0	4	157.0	148.50	15.846361	39.250
1	4	140.0	148.50	15.846361	35.000

Data Scores Two-Sample Test

Statistic	157.0000
Z	0.5364
One-Sided Pr > Z	0.2958
Two-Sided Pr > |Z|	0.5917

Monte Carlo Estimates for the Exact Test

One-Sided Pr >= S	
Estimate	0.3173
99% Lower Conf Limit	0.3120
99% Upper Conf Limit	0.3227
Two-Sided Pr >= |S - Mean|	
Estimate	0.6262
99% Lower Conf Limit	0.6206
99% Upper Conf Limit	0.6317
Number of Samples	50000
Initial Seed	440400001

Data Scores One-Way Analysis

Chi-Square	0.2877
DF	1
Pr > Chi-Square	0.5917