

```
01 LBL "NL"      ;Non-Linear Simultaneous Equations
02 CLST
03 CLRG
04 "INPUT ORDER"
05 PROMPT        ;Enter number of equations
06 STO 09
07 STO 10
08 1
09 STO 00
10 +
11 STO 08
12 31
13 STO 07
14 11
15 STO 06
16 "INPUT H"
17 PROMPT        ;Enter interval used in partial derivative calculation
18 STO 05
19 LBL A          ;Enter Variable Approximations
20 CF 29
21 FIX 0
22 "X"
23 ASTO 21
24 " = ?"        ;Space, equal sign, space, question mark
25 ASTO 22
26 CLA
27 ARCL 21
28 ARCL 00
29 ARCL 22
30 PROMPT        ;Enter initial approximation for each variable
31 STO IND 06
32 RCL 00
33 RCL 10
34 X<=Y?
35 GTO 01
36 1
37 ST+ 06
38 ST+ 00
39 GTO A          ;Enter Variable Approximations (Line 19)
40 LBL 01
41 ADV
42 11
43 STO 06
44 1
45 STO 00
46 STO 21
47 31
48 STO 10
49 "F"
50 ASTO 22
51 LBL 02
52 CF 29
53 FIX 0
54 " = "         ;Space, equal sign, space
55 ASTO 25
56 CLA
57 ARCL 22
58 ARCL 00
59 ASTO 23
60 XEQ IND 23
61 STO 26
62 SF 29
63 FIX 4
64 CLA
65 XROM 10,47    ;T1 - PPC ROM Beep Alternative
66 ARCL 23
```

```
67 ARCL 25
68 ARCL 26
69 FC? 00
70 PROMPT
71 FS? 00
72 AVIEW
73 FS? 00
74 PSE
75 RCL 26
76 CHS
77 RCL 08
78 RCL 00
79 *
80 30
81 +
82 X<>Y
83 STO IND Y
84 LBL 03
85 RCL 05
86 2
87 *
88 ST- IND 06
89 XEQ IND 23
90 STO 24
91 RCL 05
92 ST+ IND 06
93 XEQ IND 23
94 8
95 *
96 ST- 24
97 RCL 05
98 2
99 *
100 ST+ IND 06
101 XEQ IND 23
102 8
103 *
104 ST+ 24
105 RCL 05
106 ST+ IND 06
107 XEQ IND 23
108 ST- 24
109 12
110 ST/ 24
111 RCL 05
112 ST/ 24
113 2
114 *
115 ST- IND 06
116 RCL 24
117 STO IND 10
118 RCL 21
119 RCL 09
120 X<=Y?
121 GTO 04
122 1
123 ST+ 10
124 ST+ 21
125 ST+ 06
126 GTO 03
127 LBL 04
128 RCL 00
129 RCL 09
130 X<=Y?
131 GTO 05
132 1
133 ST+ 00
134 STO 21
135 2
136 ST+ 10
```

```

137 11
138 STO 06
139 GTO 02
140 LBL 05
141 1
142 STO 00
143 STO 21
144 31
145 STO 10
146 11
147 STO 06
148 RCL 09
149 STO 25
150 XEQ "RRM" ;Row Reduced Matrix (PPC ROM Manual pg 264)
151 LBL 06
152 RCL 00
153 RCL 25
154 1
155 +
156 *
157 30
158 +
159 RCL IND X
160 ST+ IND 06
161 RCL 00
162 RCL 25
163 X<=Y?
164 GTO 07
165 1
166 ST+ 00
167 ST+ 06
168 GTO 06
169 LBL 07
170 ADV
171 ADV
172 "X"
173 ASTO 21
174 1
175 STO 00
176 11
177 STO 06
178 " = " ;Space, equal sign, space
179 ASTO 22
180 LBL 08
181 CLA
182 CF 29
183 FIX 0
184 ARCL 21
185 ARCL 00
186 ARCL 22
187 FIX 4
188 SF 29
189 TONE IND 00
190 ARCL IND 06
191 FC? 00
192 PROMPT
193 FS? 00
194 AVIEW
195 RCL 00
196 RCL 25
197 X<=Y?
198 GTO 01
199 1
200 ST+ 00
201 ST+ 06
202 GTO 08
203 END ;164 BYTES

```

00A4C000F50042415244089C00A90CA815F55449544C458C8E
A7418B8F8F16143C911911131A10123AA91601F64259544520
202A111241689B738EAB16B5009219918A960AB1000212141A
10113A0390191215154B3B041217A66F1419A66F121114A66F
1112172A1B114140A66FA811A72387062A681B13432A691B13
42401B403A07908AA66F960AB700A72387A533A533B8000511
13714112141A101171413AB300C0000D77

HP-41C Row Reduced Matrix by PPC ROM Authors
PPC ROM Manual Page 264, Barcode on Page 480
Uses PPC ROM routines BX, M1, M2, M3, M4, M5

```
01 LBL "RRM" ;Row Reduced Matrix
02 .
03 STO 03
04 STO 04
05 SIGN
06 STO 01
07 SF 10
08 LBL 05
09 ISG 03
10 LBL 06
11 ISG 04
12 "" ;F0=null string (NOP)
13 RCL 08
14 RCL 04
15 X>Y?
16 RTN
17 RCL 09
18 RCL 03
19 X>Y?
20 RTN
21 RCL 04
22 XROM 20,36 ;M5 - PPC ROM Matrix, (i,j) to Register Address
23 X<> Z
24 XROM 20,36 ;M5 - PPC ROM Matrix, (i,j) to Register Address
25 E3
26 /
27 +
28 RCL 08
29 E5
30 /
31 +
32 XROM 20,41 ;BX - PPC ROM Block Extrema
33 RCL IND M
34 ST* 01
35 X=0?
36 GTO 06
37 1/X
38 RCL M
39 INT
40 XROM 20,35 ;M4 - PPC ROM Matrix, Register Address to (i,j)
41 RDN
42 STO 02
43 XROM 20,31 ;M2 - PPC ROM Matrix, Multiply Row by Constant
44 RCL 02
45 ST- 02
46 RCL 03
47 X=Y?
48 GTO 07
49 XROM 20,33 ;M1 - PPC ROM Matrix, Interchange Two Rows
50 RCL 01
51 CHS
52 STO 01
53 LBL 07
54 ISG 02
55 "" ;F0=null string (NOP)
56 RCL 09
57 RCL 02
58 X>Y?
```

```

59 GTO 05
60 RCL 03
61 X=Y?
62 GTO 07
63 RCL 02
64 RCL 04
65 XROM 20,36 ;M5 - PPC ROM Matrix, (i,j) to Register Address
66 RDN
67 RCL IND T
68 CHS
69 XROM 20,32 ;M3 - PPC ROM Matrix, Add Multiple of Row to Another
70 GTO 07
71 END ;104 BYTES

```

```

0068C000F40052524D1A33347A31A80A069603079604F02824
45852923458524A524CE71A5241B134340281B154340A52990
F5940167B70060907568A5237532A51F2293022378B800A521
215431089602F0292245B6002378B8002224A5247590F054A5
20B800C0000D0F

```

HP-41C N-L SimEq Test Functions by Ted Bailey
 PPC Calculator Journal Vol 10 N3 P33 Apr 1983
 Three function NL Simultaneous Equations test

```

01 LBL "F1" ;Fn 1: X^2 + e^Y + 3Z - 8 = 0
02 RCL 11
03 X^2
04 RCL 12
05 E^X
06 +
07 RCL 13
08 3
09 *
10 +
11 8
12 -
13 RTN
14 LBL "F2" ;Fn 2: XY + YZ + ZX - 2 = 0
15 RCL 11
16 RCL 12
17 *
18 RCL 12
19 RCL 13
20 *
21 +
22 RCL 13
23 RCL 11
24 *
25 +
26 2
27 -
28 RTN
29 LBL "F3" ;Fn 3: X^Y + X^Z - Z^X = 0
30 RCL 11
31 RCL 12
32 Y^X
33 RCL 11
34 RCL 13
35 Y^X
36 +
37 RCL 13
38 RCL 11
39 Y^X
40 -
41 RTN
42 END ;59 BYTES

```

```

003BC000F30046312B512C55402D134240184185C000F30046
322B2C422C2D42402D2B4240124185C000F30046332B2C532B
2D53402D2B534185C0000D92

```

HP-41C Non-Linear Sim. Equations by Ted Bailey PPC V10 N3 P32 Apr 1983

Program Registers Needed: 50

Row 1 (1 - 4)



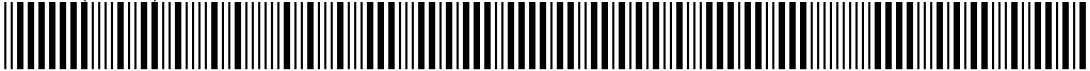
Row 2 (4 - 10)



Row 3 (11 - 16)



Row 4 (16 - 23)



Row 5 (23 - 28)



Row 6 (29 - 37)



Row 7 (38 - 46)



Row 8 (46 - 53)



Row 9 (54 - 59)



Row 10 (60 - 66)



Row 11 (67 - 74)



Row 12 (75 - 84)



Row 13 (85 - 93)



Row 14 (93 - 102)



Row 15 (103 - 110)



Row 16 (110 - 118)



HP-41C Non-Linear Sim. Equations by Ted Bailey PPC V10 N3 P32 Apr 1983

Row 17 (118 - 126)



Row 18 (126 - 135)



Row 19 (136 - 144)



Row 20 (144 - 150)



Row 21 (151 - 160)



Row 22 (160 - 168)



Row 23 (168 - 177)



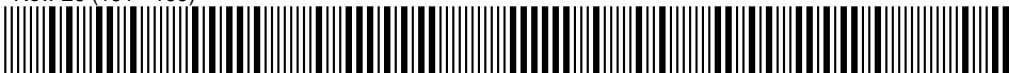
Row 24 (178 - 184)



Row 25 (184 - 190)



Row 26 (191 - 199)



Row 27 (200 - 203)



Program Registers Needed: 15

Row 1 (1 - 7)



Row 2 (7 - 17)



Row 3 (18 - 26)



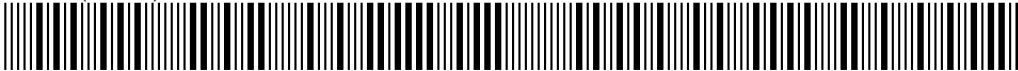
Row 4 (27 - 35)



Row 5 (36 - 44)



Row 6 (45 - 54)



Row 7 (54 - 64)



Row 8 (65 - 71)



HP-41C 3 N-L SimEq Test Functions by Ted Bailey PPC V10 N3 P33 Apr 1983

Program Registers Needed: 9

Row 1 (1 - 8)



Row 2 (9 - 16)



Row 3 (17 - 29)



Row 4 (29 - 37)



Row 5 (38 - 42)

