

HP-41C Choleski Equation Solution by T.M. Morgan
PPC Calculator Journal Vol 9 No 7 Pg 11 Dec 1982
Program uses PPC ROM module for VS - Verify Size

```
01 LBL "MC6" ;Choleski Equation Solution
02 XEQ 27
03 "N?"
04 PROMPT ;N=Number of rows in the matrix
05 STO 06
06 "BW?"
07 PROMPT ;BW=Band width
08 X>Y?
09 GTO "MC6" ;Band width must not exceed N
10 STO 08
11 *
12 16
13 STO 07
14 +
15 STO 09
16 1
17 -
18 STO 03
19 1
20 RCL 06
21 XEQ 99
22 STO 00
23 RCL 09
24 RCL 06
25 +
26 XROM 10,30 ;VS - PPC ROM Verify Size
27 FC?C 25
28 PROMPT
29 CF 26
30 LBL a ;Review or correct "A" and "C"
31 "IA" ;Inverse of coefficient matrix A
32 FC? 26
33 "A" ;Elements of coefficient matrix A
34 CF 00
35 RCL 00
36 STO 10
37 ASTO 05
38 BEEP
39 16
40 STO 12
41 LBL 12
42 RCL 10
43 RCL 08
44 1
45 -
46 STO 04
47 RCL 10
48 +
49 XEQ 99
50 STO 11
51 LBL 13
52 XEQ 43
53 ISG 11
54 GTO 13
55 ISG 10
56 GTO 12
57 LBL c ;Review or correct "C" only
58 FS? 26
59 XEQ 27
60 "X" ;1 dimensional solution vector X
61 FC? 26
62 "C" ;1 dimensional constant vector C
63 XEQ 33
64 "GO?"
65 PROMPT ;Don't turn off after R/S
66 XEQ 27
```

```
67 17
68 RCL 08
69 15
70 +
71 XEQ 99
72 STO 10
73 RCL 16
74 X<0?
75 SF 01
76 ABS
77 SQRT
78 STO 16
79 ST/ IND 09
80 LBL 01
81 ST/ IND 10
82 ISG 10
83 GTO 01
84 RCL 00
85 1
86 +
87 STO 10
88 LBL 02
89 RCL 10
90 XEQ 66
91 LBL 03
92 RCL 10
93 RCL 12
94 XEQ 55
95 RCL IND X
96 X^2
97 FS? IND 12
98 CHS
99 ST+ 02
100 ISG 12
101 GTO 03
102 RCL 10
103 RCL 10
104 XEQ 55
105 STO 13
106 RCL IND X
107 RCL 02
108 -
109 X<0?
110 SF IND 10
111 ABS
112 SQRT
113 STO IND 13
114 RCL 10
115 RCL 06
116 X<Y?
117 GTO 04
118 RDN
119 1
120 +
121 RCL 10
122 INT
123 RCL 04
124 +
125 RCL 06
126 X>Y?
127 X<>Y
128 RDN
129 STO 15
130 XEQ 99
131 STO 11
132 LBL 05
133 0
134 STO 02
135 RCL 11
136 RCL 15
```

137 X<Y?
138 GTO 20
139 RDN
140 XEQ 66
141 LBL 06
142 RCL 10
143 RCL 12
144 XEQ 55
145 RCL 11
146 RCL 12
147 XEQ 55
148 RCL IND Y
149 RCL IND Y
150 *
151 FS? IND 12
152 CHS
153 ST+ 02
154 ISG 12
155 GTO 06
156 LBL 20
157 RCL 11
158 RCL 10
159 XEQ 55
160 RCL IND X
161 RCL 02
162 -
163 RCL IND 13
164 /
165 FS? IND 10
166 CHS
167 STO IND Y
168 LBL 07
169 ISG 11
170 GTO 05
171 ISG 10
172 GTO 02
173 LBL 04
174 RCL 00
175 1
176 +
177 STO 10
178 LBL 08
179 RCL 10
180 XEQ 66
181 RCL 10
182 RCL 04
183 -
184 STO 15
185 LBL 09
186 RCL 15
187 RCL 12
188 X<Y?
189 GTO 00
190 RCL 10
191 RCL 12
192 XEQ 55
193 RCL IND X
194 RCL 09
195 RCL 12
196 +
197 1
198 -
199 RDN
200 FS? IND 12
201 CHS
202 RCL IND T
203 *
204 ST+ 02
205 LBL 00
206 ISG 12

207 GTO 09
208 RCL 03
209 RCL 10
210 +
211 STO 13
212 RCL IND X
213 RCL 02
214 -
215 RCL 10
216 RCL 10
217 XEQ 55
218 RDN
219 RCL IND T
220 /
221 FS? IND 10
222 CHS
223 STO IND 13
224 ISG 10
225 GTO 08
226 RCL 09
227 RCL 06
228 +
229 1
230 -
231 STO 13
232 RCL IND 13
233 RCL 06
234 RCL 06
235 XEQ 55
236 RDN
237 RCL IND T
238 /
239 STO IND 13
240 RCL 06
241 1
242 -
243 STO 10
244 LBL 10
245 0
246 STO 02
247 RCL 10
248 1
249 +
250 RCL 06
251 XEQ 99
252 STO 12
253 RCL 10
254 RCL 04
255 +
256 STO 15
257 LBL 11
258 RCL 15
259 RCL 12
260 X>Y?
261 GTO 00
262 RCL 03
263 +
264 RCL IND X
265 RCL 12
266 RCL 10
267 XEQ 55
268 RDN
269 RCL IND T
270 *
271 ST+ 02
272 LBL 00
273 ISG 12
274 GTO 11
275 RCL 10
276 RCL 03

```

277 +
278 STO 13
279 RCL IND X
280 RCL 02
281 -
282 RCL 10
283 RCL 10
284 XEQ 55
285 RDN
286 RCL IND T
287 /
288 STO IND 13
289 DSE 10
290 GTO 10
291 GTO a
292 LBL 33
293 ASTO 05
294 SF 00
295 BEEP
296 RCL 00
297 STO 10
298 RCL 09
299 STO 12
300 LBL 14
301 XEQ 44
302 ISG 10
303 GTO 14
304 RTN
305 LBL 43
306 RCL 06
307 RCL 11
308 INT
309 X>Y?
310 GTO 45
311 LBL 44
312 RCL d
313 CLA
314 ARCL 05
315 FIX 00
316 CF 29
317 >"\28"      ;Append left parenthesis
318 ARCL 10
319 FC? 00
320 >","        ;Append comma
321 FC? 00
322 ARCL 11
323 >"\29="      ;Append right parenthesis, equal sign
324 STO d
325 RDN
326 RCL IND 12
327 ARCL X
328 FS? IND 10
329 >"J"         ;Append letter J (imaginary element)
330 PROMPT
331 STO IND 12
332 LBL 45
333 ISG 12
334 ""           ;F0=null string (NOP)
335 RTN
336 LBL 55
337 X<> 08
338 -
339 LASTX
340 X<> 08
341 -
342 LASTX
343 RCL 08
344 *
345 +
346 RCL 07

```

```

347 +
348 RTN
349 LBL 66
350 INT
351 RCL 04
352 -
353 X<=0?
354 1
355 RCL 10
356 INT
357 1
358 -
359 XEQ 99
360 STO 12
361 0
362 STO 02
363 RTN
364 LBL 27
365 "<4 "      ;Left angle bracket, number 4, space
366 RCL M
367 STO d
368 RTN
369 LBL 99
370 INT
371 E3
372 /
373 X<>Y
374 INT
375 +
376 END

```

```

0240C000F4004D4336E0001BF24E3F8E36F342573F8E451DF3
4D4336384211163740391141331126E0006330292640A29EAB
198EA91ACF7BF24941AD1AF141A900203A9A058611163C0D2A
281141342A40E000633B0EE0002B960BBE00960ABD00CF7DAC
1AE0001BF158AD1AF143E00021F3474F3F8EE0001B11172811
1540E000633A901066A80161529110958902958A960AB20020
11403A032AE00042042A2CE0003790F351AC8C549202960CB4
002A2AE000373D90F3224166A88A6152918D2A2644B5007511
402A682440264571753FE000633B0610322B2F44D0001475E0
0042072A2CE000372B2CE0003790F290F242AC8C549202960C
B700CF142B2AE0003790F32241908D43AC8A5491F208960BB6
00960AB300052011403A092AE000422A24413F0A2F2C44B100
2A2CE0003790F3292C40114175AC8C5490F042920201960CBA
00232A403D90F322412A2AE000377590F043AC8A54918D960A
B90029264011413D908D2626E000377590F043918D2611413A
0B10322A114026E000633C2A24403F0C2F2C45B100234090F3
2C2AE000377590F042920201960CBC002A23403D90F322412A
2AE000377590F043918D970ABB00D0007BCF219A05A8008620
3A293C0FE0002C960ABF0085CF2B262B6845D0002DCF2C907E
879B059C00A91DF27F289B0AAD00F27F2CAD009B0BF37F293D
917E75908C9B73AC8AF27F4A8E918CCF2D960CF085CF37CE08
4176CE084176284240274085CF426824417B112A681141E000
633C103285CF1BF33C34209075917E85CF63681B1343716840
C0000D6E

```

576 BYTES

HP-41C Choleski Equation Solution by T.M. Morgan PPC V9 N8 P11 Dec 1982

Program Registers Needed: 83

Row 1 (1 - 3)



Row 2 (4 - 9)



Row 3 (10 - 21)



Row 4 (21 - 29)



Row 5 (30 - 36)



Row 6 (37 - 47)



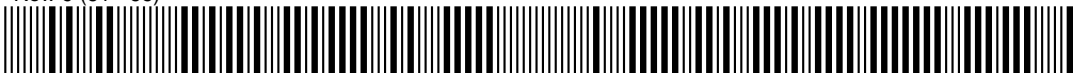
Row 7 (48 - 54)



Row 8 (55 - 60)



Row 9 (61 - 66)



Row 10 (66 - 73)



Row 11 (73 - 81)



Row 12 (82 - 90)



Row 13 (91 - 99)



Row 14 (99 - 106)



Row 15 (107 - 117)



Row 16 (117 - 129)



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Row 17 (130 - 138)



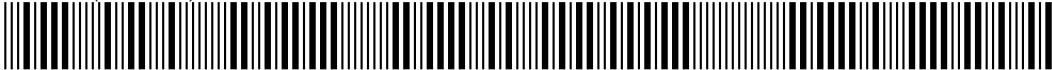
Row 18 (139 - 147)



Row 19 (147 - 154)



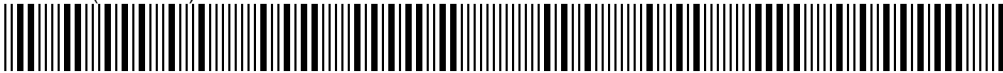
Row 20 (154 - 161)



Row 21 (162 - 170)



Row 22 (170 - 180)



Row 23 (180 - 190)



Row 24 (191 - 200)



Row 25 (200 - 208)



Row 26 (209 - 218)



Row 27 (219 - 226)



Row 28 (227 - 236)



Row 29 (237 - 247)



Row 30 (248 - 258)



Row 31 (259 - 267)



Row 32 (268 - 276)



Row 33 (277 - 286)



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Row 34 (286 - 292)



Row 35 (293 - 301)



Row 36 (302 - 310)



Row 37 (310 - 317)



Row 38 (317 - 322)



Row 39 (323 - 328)



Row 40 (329 - 336)



Row 41 (336 - 346)



Row 42 (347 - 358)



Row 43 (359 - 365)



Row 44 (366 - 374)



Row 45 (375 - 376)

