

HP-41C Curve Fitting w/Stat. Inference by Gary W. Thorburn
PPC Calculator Journal Volume 10 Number 2 Page 21 Mar 1983
Uses PPC ROM, 1 memory module, no peripherals, SIZE of 43.

```
01 LBL "CV+" ;Curve Fitting with Statistical Inference
02 RTN
03 LBL A      ;Enter Data Points (x, ENTER, y, XEQ A)
04 SF 03
05 1
06 STO 06
07 RDN
08 XROM 20,08 ;CV - PPC ROM Curve Fit
09 RTN
10 LBL a      ;Delete Data Points
11 SF 03
12 SF 10
13 6
14 STO 06
15 RDN
16 XROM 20,08 ;CV - PPC ROM Curve Fit
17 RTN
18 LBL D      ;Estimate x given y
19 4
20 STO 06
21 RDN
22 XROM 20,08 ;CV - PPC ROM Curve Fit
23 RTN
24 LBL e      ;Clear and Initialize Program
25 .95
26 STO 02
27 CF 02
28 SF 03
29 0
30 STO 06
31 XROM 20,08 ;CV - PPC ROM Curve Fit
32 RTN
33 LBL B      ;Fit Desired Model (Model Type in X)
34 1
35 X>Y?
36 RTN
37 RDN
38 4
39 X<Y?
40 RTN
41 2
42 X<> Z
43 STO 00
44 FS?C 03
45 XEQ 03
46 2
47 STO 06
48 RCL 00
49 XROM 20,08 ;CV - PPC ROM Curve Fit
50 GTO 08
51 LBL 03
52 "TF"
53 ASTO 06
54 FIX 3
55 SF 02
56 SF 05
57 CF 04
58 LBL 07
59 0
60 ENTER
61 2
62 XROM 20,10 ;SV - PPC ROM Solve
63 FS? 05
64 STO 03
65 STO 01
66 FS?C 05
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67 GTO 07
68 CF 02
69 RTN
70 LBL b      ;Select Confidence Level
71 "C-LVL?"
72 PROMPT      ;Enter Confidence Level
73 STO 02
74 SF 03
75 RTN
76 LBL E      ;Request Best Fit
77 FS?C 03
78 XEQ 03
79 5
80 STO 06
81 RDN
82 XROM 20,08 ;CV - PPC ROM Curve Fit
83 LBL 08
84 RCL 07
85 8
86 +
87 STO 06
88 XROM 20,08 ;CV - PPC ROM Curve Fit
89 SREG 13    ;SigmaREG
90 RCL 14
91 RCL 13
92 X^2
93 RCL 18
94 /
95 -
96 STO 00
97 RCL 16
98 RCL 09
99 FS? 08
100 LN
101 RCL 15
102 *
103 -
104 RCL 08
105 RCL 17
106 *
107 -
108 STO 31
109 RCL 18
110 2
111 -
112 /
113 STO 32
114 RCL 08
115 X^2
116 RCL 00
117 *
118 STO 33
119 RCL 16
120 RCL 18
121 R^
122 R^
123 MEAN
124 STO 39
125 RDN
126 X^2
127 *
128 -
129 STO 34
130 RCL 32
131 RCL 00
132 /
133 SQRT
134 STO 35
135 RCL 32
136 RCL 18

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137 /
138 RCL 14
139 *
140 RCL 00
141 /
142 SQRT
143 FS? 08
144 E^X
145 STO 36
146 SDEV
147 STO 40
148 XROM 20,08 ;CV - PPC ROM Curve Fit
149 MEAN
150 STO 27
151 RDN
152 STO 28
153 SDEV
154 STO 29
155 RDN
156 STO 30
157 R^
158 RCL 18
159 SQRT
160 /
161 STO 37
162 RDN
163 LASTX
164 /
165 STO 38
166 "MODEL "
167 FIX 0
168 ARCL 07
169 AVIEW ;Display Best Fit Model Number
170 FIX 3
171 TONE 8
172 RTN
173 LBL d ;Display b1, upper bound, lower bound
174 RCL 01
175 RCL 35
176 RCL 08
177 LBL 02
178 STOP
179 FS? 03
180 GTO 09
181 STO T
182 RDN
183 *
184 +
185 STOP
186 RDN
187 LASTX
188 -
189 STOP
190 RTN
191 LBL H ;Display x-bar, upper bound, lower bound
192 RCL 01
193 RCL 37
194 RCL 27
195 GTO 02
196 LBL I ;Display y-bar, upper bound, lower bound
197 RCL 01
198 RCL 38
199 RCL 28
200 GTO 02
201 LBL c ;Display b0, upper bound, lower bound
202 RCL 09
203 STOP
204 FS? 08
205 LN
206 ENTER

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207 ENTER
208 RCL 01
209 RCL 36
210 FS? 08
211 LN
212 *
213 LBL 01
214 FS? 03
215 GTO 09
216 STO T
217 +
218 LASTX
219 ST- Z
220 RDN
221 FS? 08
222 E^X
223 STOP
224 RDN
225 FS? 08
226 E^X
227 STOP
228 RTN
229 LBL F      ;Display P-level of regression and F-ratio
230 RCL 33
231 RCL 32
232 /
233 STO 41
234 SF 05
235 SF 04
236 XEQ "TF"   ;Approximate t and F Distributions (Line 292)
237 CF 05
238 CF 04
239 RND
240 "P="
241 ARCL X
242 AVIEW      ;Display P-level of regression
243 RTN
244 LBL C      ;Estimate y given x, upper bound, lower bound
245 3
246 STO 06
247 RDN
248 STO 04
249 XROM 20,08 ;CV - PPC ROM Curve Fit
250 STO 05
251 STOP
252 RCL 04
253 2
254 RCL 07
255 X<=Y?
256 GTO 00
257 X<> Z
258 LN
259 X<> Z
260 LBL 00
261 X<> Z
262 RCL 39
263 -
264 X^2
265 RCL 18
266 1
267 -
268 RCL 40
269 X^2
270 *
271 /
272 RCL 18
273 1/X
274 +
275 FC? 01
276 1

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277 FC? 01
278 +
279 SQRT
280 RCL 32
281 SQRT
282 *
283 RCL 03
284 *
285 RCL 05
286 FS? 08
287 LN
288 ENTER
289 ENTER
290 X<> T
291 GTO 01
292 LBL "TF"      ;Calculate Approximations to t and F Distributions
293 STO 42
294 2
295 ENTER
296 9
297 /
298 STO 05
299 RCL 18
300 FS? 05
301 2
302 FC? 05
303 1
304 -
305 1/X
306 *
307 STO 04
308 RDN
309 FS? 04
310 2
311 FC? 04
312 4
313 ENTER
314 3
315 /
316 Y^X
317 RCL 04
318 *
319 RCL 05
320 +
321 SQRT
322 1/X
323 RCL 42
324 FS? 04
325 1
326 FC? 04
327 2
328 ENTER
329 3
330 /
331 Y^X
332 RCL 04
333 1
334 -
335 CHS
336 *
337 RCL 05
338 1
339 -
340 +
341 *
342 XEQ 05
343 FS? 04
344 2
345 FC? 04
346 4

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347 /
348 FS? 04
349 RTN
350 RCL 02
351 1
352 -
353 2
354 /
355 +
356 RTN
357 LBL 05
358 STO 04
359 .019527
360 *
361 .000394
362 +
363 RCL 04
364 *
365 .115194
366 +
367 RCL 04
368 *
369 .196854
370 +
371 RCL 04
372 *
373 1
374 +
375 4
376 Y^X
377 1/X
378 RTN
379 LBL 09
380 TONE 1
381 "XEQ B FIRST"
382 AVIEW      ;Must Enter Model Type Before Calculating b0 or b1
383 RTN
384 END

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```

024AC000F40043562B85CF66A803113675A50885CF7BA803A8
0A163675A50885CF69143675A50885CF7F1A191532A902A803
1036A50885CF671145857514448512CE7130AA03E000031236
20A508B90004F254469A069C03A802A805A90408108312A50A
AC053331AA05B800A90285CF7CF6432D4C564C3F8E32A80385
CF6AAA03E00003153675A5080927184036A508990D2E2D5190
12434130901029AC08502F42412890114241911F9012124143
91202851204291219010901274747C91277551424191229020
204352912390209012432E42204352AC085591247D9128A508
7C911B75911C7D911D75911E749012524391257576439126F6
4D4F44454C209C009B077E9C039F0885CF7E219023280384AC
03BA009170754240847576418485CF6D219025901BB300CF6E
219026901CB300CF7D2984AC08508383219024AC08504202AC
03BA0091704076937175AC08558475AC08558485CF6B902190
20439129A805A8041EF25446A905A9046EF2503D9B737E85CF
6813367534A508358424122746B100CE7150CE7101CE719027
415190121141902851424390126040AD0111AD014052902052
42234225AC08508383CE70B200C000F3005446912A12831943
359012AC0512AD05114160423475AC0412AD04148313435324
4225405260902AAC0411AD0412831343532411415442251141
4042E00005AC0412AD041443AC04852211411243408506341A
101119151217421A1010101319144024421A11111511191440
24421A1119161815144024421140145360850A9F01FB584551
20422046495253547E85C0000D54

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586 BYTES

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Program Registers Needed: 84

Row 1 (1 - 5)



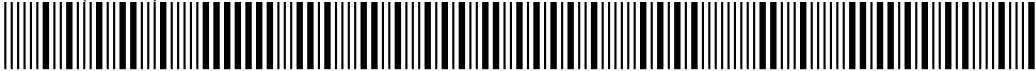
Row 2 (6 - 14)



Row 3 (15 - 24)



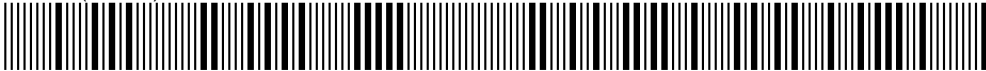
Row 4 (24 - 31)



Row 5 (32 - 42)



Row 6 (43 - 50)



Row 7 (51 - 57)



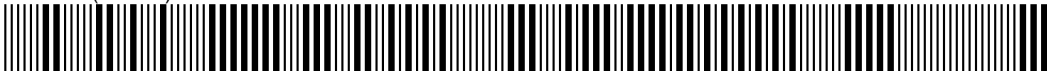
Row 8 (57 - 66)



Row 9 (67 - 71)



Row 10 (71 - 78)



Row 11 (79 - 89)



Row 12 (89 - 99)



Row 13 (99 - 109)



Row 14 (109 - 119)



Row 15 (119 - 129)



Row 16 (129 - 137)



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Row 17 (138 - 147)



Row 18 (148 - 156)



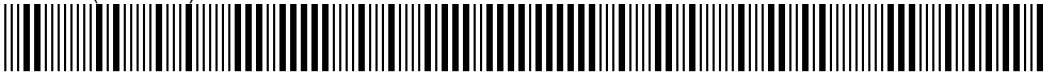
Row 19 (156 - 165)



Row 20 (166 - 170)



Row 21 (170 - 179)



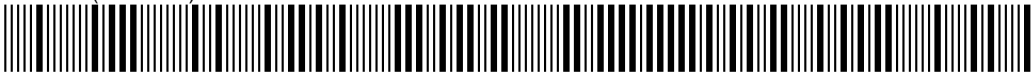
Row 22 (179 - 189)



Row 23 (190 - 197)



Row 24 (198 - 205)



Row 25 (206 - 215)



Row 26 (215 - 224)



Row 27 (225 - 233)



Row 28 (233 - 238)



Row 29 (239 - 247)



Row 30 (248 - 257)



Row 31 (258 - 266)



Row 32 (267 - 276)



Row 33 (277 - 286)



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Row 34 (287 - 292)



Row 35 (293 - 302)



Row 36 (302 - 312)



Row 37 (313 - 324)



Row 38 (324 - 335)



Row 39 (336 - 345)



Row 40 (345 - 356)



Row 41 (357 - 361)



Row 42 (361 - 365)



Row 43 (365 - 371)



Row 44 (372 - 381)



Row 45 (381 - 384)



Row 46 (384)

