

HP-41C Least Squares Regression Degree 8 by Jim Cook
PPC Calculator Journal Volume 10 No 2 Pg 15 Mar 1983
Requires PPC ROM and Extended Function/Memory module

```
01 LBL "CF8P" ;Least Squares Regression to Degree 8
02 "FIT"
03 AVIEW ;Remind which program is running
04 75
05 XROM 10,30 ;VS - PPC ROM Verify Size
06 FC?C 25
07 PROMPT ;RESIZE>=75 displayed if SIZE<75
08 .
09 RCL 10
10 19
11 X<>Y
12 XROM 20,39 ;BM - PPC ROM Block Move
13 RCL 14
14 STO 28
15 RCL 15
16 STO 29
17 LBL a ;Restart program
18 RCL 13
19 STO 08
20 RCL 09
21 FIX 0
22 "DEG "
23 ARCL X
24 ">" "?" ;Append space, question mark
25 PROMPT ;Enter degree of polynomial
26 STO 09
27 RCL 17
28 E1
29 /
30 RCL 16
31 E2
32 /
33 +
34 ST+ 09
35 55
36 FS? 55
37 XROM 10,49 ;IF - PPC ROM Invert Flag
38 30
39 STO 0
40 .
41 STO 03
42 RCL 19
43 STO 10
44 GTO 20
45 LBL 01
46 RCL 20
47 STO 11
48 GTO 20
49 LBL 02
50 E
51 XEQ 09
52 STO 67
53 RCL 21
54 *
55 ST+ 10
56 E
57 XEQ 10
58 STO 68
59 RCL 21
60 *
61 STO 12
62 GTO 20
63 LBL 03
64 2
65 XEQ 10
66 RCL 67
```

67 *
68 2
69 XEQ 09
70 +
71 STO 71
72 RCL 22
73 *
74 ST+ 11
75 LASTX
76 RCL 00
77 RCL 68
78 *
79 STO 72
80 *
81 STO 13
82 GTO 20
83 LBL 04
84 3
85 XEQ 09
86 RCL 67
87 *
88 STO 67
89 RCL 23
90 *
91 ST+ 10
92 3
93 XEQ 10
94 RCL 71
95 *
96 RCL 01
97 RCL 68
98 *
99 +
100 STO 68
101 RCL 23
102 *
103 ST+ 12
104 LASTX
105 RCL 00
106 RCL 72
107 *
108 STO 69
109 *
110 STO 14
111 GTO 20
112 LBL 05
113 4
114 XEQ 10
115 RCL 67
116 *
117 4
118 XEQ 09
119 RCL 71
120 *
121 +
122 STO 71
123 RCL 24
124 *
125 ST+ 11
126 RCL 00
127 RCL 68
128 *
129 RCL 01
130 RCL 72
131 *
132 +
133 STO 72
134 RCL 24
135 *
136 ST+ 13

137 LASTX
138 RCL 00
139 RCL 69
140 *
141 STO 73
142 *
143 STO 15
144 GTO 20
145 LBL 06
146 5
147 XEQ 09
148 RCL 67
149 *
150 STO 67
151 RCL 25
152 *
153 ST+ 10
154 5
155 XEQ 10
156 RCL 71
157 *
158 RCL 01
159 RCL 68
160 *
161 +
162 STO 68
163 RCL 25
164 *
165 ST+ 12
166 RCL 00
167 RCL 72
168 *
169 RCL 01
170 RCL 69
171 *
172 +
173 STO 69
174 RCL 25
175 *
176 ST+ 14
177 LASTX
178 RCL 00
179 RCL 73
180 *
181 STO 70
182 *
183 STO 16
184 GTO 20
185 LBL 07
186 6
187 XEQ 10
188 RCL 67
189 *
190 6
191 XEQ 09
192 RCL 71
193 *
194 +
195 STO 71
196 RCL 26
197 *
198 ST+ 11
199 RCL 00
200 RCL 68
201 *
202 RCL 01
203 RCL 72
204 *
205 +
206 STO 72

207 RCL 26
208 *
209 ST+ 13
210 RCL 00
211 RCL 69
212 *
213 RCL 01
214 RCL 73
215 *
216 +
217 STO 73
218 RCL 26
219 *
220 ST+ 15
221 LASTX
222 RCL 00
223 RCL 70
224 *
225 STO 74
226 *
227 STO 17
228 GTO 20
229 LBL 08
230 7
231 XEQ 09
232 RCL 67
233 *
234 RCL 27
235 *
236 ST+ 10
237 7
238 XEQ 10
239 RCL 71
240 *
241 RCL 01
242 RCL 68
243 *
244 +
245 RCL 27
246 *
247 ST+ 12
248 RCL 00
249 RCL 72
250 *
251 RCL 01
252 RCL 69
253 *
254 +
255 RCL 27
256 *
257 ST+ 14
258 RCL 00
259 RCL 73
260 *
261 RCL 01
262 RCL 70
263 *
264 +
265 RCL 27
266 *
267 ST+ 16
268 LASTX
269 RCL 00
270 RCL 74
271 *
272 *
273 STO 18
274 GTO 20
275 LBL 09
276 STO 05

277 E
278 +
279 RCL 08
280 X<>Y
281 +
282 LASTX
283 /
284 RCL 05
285 *
286 RCL 08
287 LASTX
288 -
289 SF 25
290 /
291 CHS
292 STO 01
293 RTN
294 LBL 10
295 ENTER
296 STO 05
297 E
298 +
299 +
300 LASTX
301 /
302 RCL 08
303 *
304 LASTX
305 RCL 05
306 -
307 SF 25
308 /
309 STO 00
310 RTN
311 LBL 20
312 -2
313 RCL 08
314 RCL 29
315 *
316 /
317 STO 00
318 CHS
319 RCL 28
320 *
321 E
322 STO 04
323 STO 07
324 +
325 STO 01
326 .
327 STO 02
328 STO 05
329 STO 06
330 E1
331 STO M
332 STO N
333 LBL 21
334 RCL 05
335 FACT
336 RCL 02
337 FACT
338 /
339 RCL 05
340 RCL 02
341 -
342 FACT
343 /
344 RCL IND M
345 *
346 RCL 04

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347 *
348 ST+ 06
349 RCL 03
350 RCL 05
351 X=Y?
352 GTO 01
353 E
354 ST+ M
355 ST+ 05
356 RCL 01
357 ST* 04
358 GTO 21
359 LBL 01
360 RCL 06
361 RCL 07
362 *
363 STO IND O
364 ISG O
365 "" ;F0=null string (NOP)
366 RCL 03
367 RCL 02
368 X=Y?
369 GTO 02
370 E
371 STO 04
372 +
373 STO 02
374 STO 05
375 .
376 STO 06
377 ISG N
378 "" ;F0=null string (NOP)
379 RCL N
380 STO M
381 RCL 00
382 ST* 07
383 GTO 21
384 LBL 02
385 ISG 03
386 "" ;F0=null string (NOP)
387 RCL 09
388 RCL 03
389 X<=Y?
390 GTO IND X
391 X<>Y
392 FRC
393 ST- 09
394 E1
395 *
396 ENTER
397 INT
398 STO 17
399 -
400 E1
401 *
402 STO 16
403 X<>Y
404 RCL 08
405 STO 13
406 RCL 29
407 *
408 RCL 28
409 +
410 STO 12
411 .008
412 XROM 20,43 ;BC - PPC ROM Block Clear
413 RCL O
414 R^
415 -
416 X<>Y

```

```

417 LASTX
418 XROM 20,39 ;BM - PPC ROM Block Move
419 LBL 99
420 CF 01
421 CF 02
422 CF 03
423 CF 21
424 FS? 14
425 SF 21
426 BEEP
427 "DONE!"
428 PROMPT      ;Processing complete
429 LBL E       ;Compare curves
430 SF 02
431 "MAX DEG?"
432 PROMPT      ;Maximum degree of polynomial
433 STO 10
434 "MIN DEG?"
435 PROMPT      ;Minimum degree of polynomial
436 STO 09
437 CF 23
438 "MIN&MAX ONLY"
439 AON
440 PROMPT      ;N=compare all between MIN & MAX
441 AOFF        ;R/S=compare MIN to MAX only
442 FC?C 23
443 SF 03
444 LBL D       ;Compute a curve over data interval
445 SF 01
446 FS? 02
447 GTO 11
448 LBL B       ;Review or change FIX X, FIX Y, DEG
449 FIX 0
450 RCL 17
451 "FIX X = "
452 ARCL X
453 PROMPT      ;Review or enter X display format
454 STO 17
455 RCL 16
456 "FIX Y = "
457 ARCL X
458 PROMPT      ;Review or enter Y display format
459 STO 16
460 CF 22
461 RCL 09
462 "DEG "
463 ARCL X
464 PROMPT      ;Review or enter degree of polynomial
465 STO 09
466 FC?C 22
467 GTO 09
468 LBL 11
469 30
470 CLA
471 .
472 RCL 09
473 LBL 12
474 X=Y?
475 GTO 13
476 ISG Y
477 ""         ;F0=null string (NOP)
478 RDN
479 +
480 LASTX
481 R^
482 GTO 12
483 LBL 13
484 E
485 +
486 X<>Y

```

```

487 RDN
488 .008
489 XROM 20,43 ;BC - PPC ROM Block Clear
490 X<>Y
491 XROM 20,39 ;BM - PPC ROM Block Move
492 FIX 0
493 "DEG "
494 ARCL 09
495 AVIEW ;Degree of polynomial
496 LBL 09
497 FC? 01
498 RTN
499 RCL 28
500 LBL "CC" ;Compute y estimate from x
501 LBL 00
502 RCL 09
503 STO 18
504 RDN
505 ENTER
506 ENTER
507 STO 14
508 .
509 LBL 14
510 RCL IND 18
511 +
512 *
513 DSE 18
514 GTO 14
515 RCL 00
516 +
517 STO 15
518 FIX IND 17
519 "Y\28" ;Letter Y, left parenthesis
520 ARCL Y
521 ">\29=" ;Append right parenthesis, equal sign
522 FIX IND 16
523 ARCL X
524 AVIEW
525 FC? 01
526 RTN
527 FC? 14
528 RTN
529 RCL 12
530 R^
531 RCL 29
532 +
533 X<=Y?
534 GTO 00
535 FC? 02
536 GTO 99
537 RCL 10
538 RCL 09
539 X=Y?
540 GTO 99
541 E
542 +
543 FS? 03
544 RDN
545 STO 09
546 GTO 11
547 END

```


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```
0379C000F50043463850F34649547E1715A29EAB198E1A2A11
1971A5272E911C2F911DCF7B2D38299C00F4444547209B73F3
7F203F8E3990111B114390101B12434092091515AC37A2B113
1091771A3390133AD000140290143BD00014031BE000099143
901542920A1BE0000A91449015423CD000140412E0000A9043
4212E00009409147901642920B76209044429148423DD00014
0513E000099043429143901742920A13E0000A904742219044
42409144901742920C76209048429145423ED000140614E000
0A90434214E00009904742409147901842920B209044422190
4842409148901842920D76209045429149423FD000140715E0
00099043429143901942920A15E0000A904742219044424091
44901942920C2090484221904542409145901942920E762090
49429146429110D000140816E0000A90434216E00009904742
409147901A42920B2090444221904842409148901A42920D20
90454221904942409149901A42920F7620904642914A429111
D000140917E00009904342901B42920A17E0000A9047422190
444240901B42920C209048422190454240901B42920E209049
422190464240901B4292107620904A42429112D000140A351B
4028714076432542287641A819435431850B83351B40407643
2842762541A819433085CF141C1228901D42433054901C421B
343740311A3235361B1191759176CF15256222624325224162
4390F54224429206232578B2001B92759205219404D0001502
26274291F79677F0232278B3001B344032351A369676F09076
9175209407D00015039603F0292346AE73716993091B114283
689111411B1142911071283D901D42901C403C1A101018A52B
907774417176A527CF63A901A902A903A915AC0EA81586F544
4F4E45218ECF6AA802F84D4158204445473F8E3AF84D494E20
4445473F8E39A917FC4D494E264D4158204F4E4C598C8E8BAB
17A803CF69A801AC02BC00CF679C009011F84649582058203D
209B738E91119010F84649582059203D209B738E9110A91629
F4444547209B738E39AB16BA000C1310871A290D78BE009672
F075407674BD000E1B4071751A101018A52B71A5279C00F444
4547209B097E0AAD0185901CC000F300434301299112758383
3E1A0F909240429712BF0020403F9C91F259289B72F37F293D
9C909B737EAD0185AD0E852C74901D4046B100AD02D000632A
2978D000631B40AC037539BC00C0000DB5
```

889 BYTES

HP-41C Least Squares Reg. to Deg. 8 by Jim Cook PPC V10 N2 P15 Mar 1983

Program Registers Needed: 127

Row 1 (1 - 3)



Row 2 (4 - 12)



Row 3 (12 - 21)



HP-41C Least Squares Reg. to Deg. 8 by Jim Cook PPC V10 N2 P15 Mar 1983

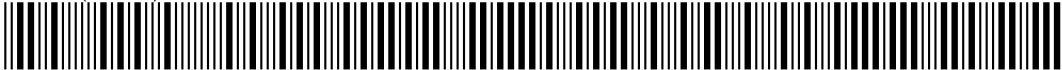
Row 4 (21 - 25)



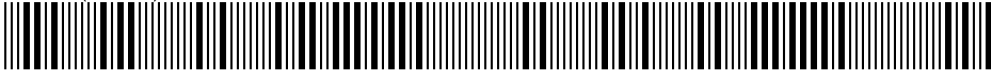
Row 5 (26 - 34)



Row 6 (34 - 41)



Row 7 (42 - 48)



Row 8 (49 - 56)



Row 9 (57 - 63)



Row 10 (64 - 71)



Row 11 (71 - 79)



Row 12 (80 - 87)



Row 13 (88 - 94)



Row 14 (95 - 103)



Row 15 (104 - 112)



Row 16 (113 - 119)



Row 17 (120 - 128)



Row 18 (129 - 137)



Row 19 (138 - 146)



Row 20 (147 - 153)



HP-41C Least Squares Reg. to Deg. 8 by Jim Cook PPC V10 N2 P15 Mar 1983

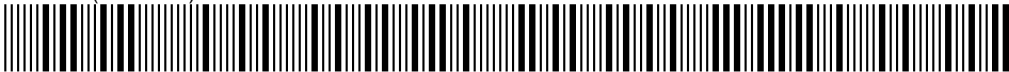
Row 21 (154 - 162)



Row 22 (162 - 170)



Row 23 (171 - 179)



Row 24 (180 - 187)



Row 25 (187 - 195)



Row 26 (195 - 203)



Row 27 (204 - 212)



Row 28 (213 - 221)



Row 29 (222 - 229)



Row 30 (230 - 237)



Row 31 (238 - 245)



Row 32 (246 - 255)



Row 33 (255 - 264)



Row 34 (265 - 273)



Row 35 (274 - 284)



Row 36 (285 - 296)

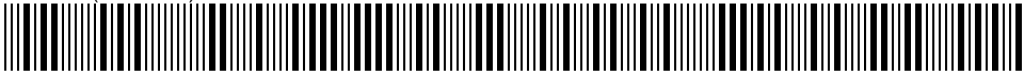


Row 37 (297 - 308)



HP-41C Least Squares Reg. to Deg. 8 by Jim Cook PPC V10 N2 P15 Mar 1983

Row 38 (309 - 318)



Row 39 (319 - 330)



Row 40 (330 - 339)



Row 41 (340 - 350)



Row 42 (351 - 358)



Row 43 (358 - 368)



Row 44 (369 - 379)



Row 45 (379 - 386)



Row 46 (387 - 396)



Row 47 (397 - 406)



Row 48 (406 - 413)



Row 49 (413 - 421)



Row 50 (422 - 427)



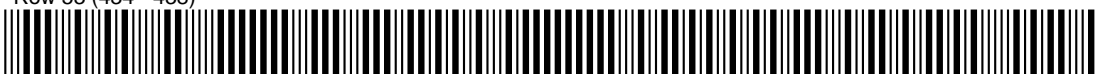
Row 51 (427 - 431)



Row 52 (431 - 434)



Row 53 (434 - 438)



Row 54 (438 - 444)



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Row 55 (444 - 450)



Row 56 (451 - 454)



Row 57 (454 - 457)



Row 58 (457 - 463)



Row 59 (463 - 472)



Row 60 (473 - 482)



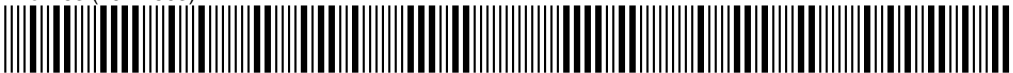
Row 61 (483 - 491)



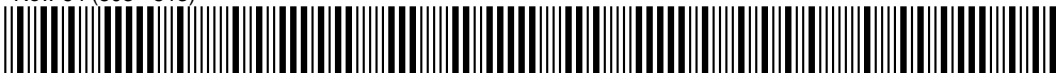
Row 62 (491 - 497)



Row 63 (497 - 503)



Row 64 (503 - 513)



Row 65 (514 - 521)



Row 66 (521 - 527)



Row 67 (528 - 536)



Row 68 (536 - 545)



Row 69 (546 - 547)

