

Case 1. Call FM_FIND_MIN to find a relative minimum between 1 and 2 for $f(x) = X^3 - 9X + 17$. Use KPRT = 0, so no output will be done in the routine, then write the results from the main program.

A minimum for function 1 is

$x = 1.7320508075688772E+00$, $f(x) = 6.6076951545867360E+00$

Case 2. Find a relative maximum between -5 and 1. Use KPRT = 1, so FM_FIND_MIN will print the results.

FM_FIND_MIN. Function 1 16 iterations. A relative maximum on interval $-5.0000000000E+00$ to $1.0000000000E+00$ is $x = -1.7320508075688772E+00$, $f(x) = 2.7392304845413264E+01$

Case 3. Find a relative maximum between -5 and 5. Use KPRT = 2, so FM_FIND_MIN will print all iterations, as well as the final results.

FM_FIND_MIN. Begin trace of all iterations. Search for a relative maximum on the interval $-5.0000000000E+00$ to $5.0000000000E+00$

J = 1	X = -1.1803398874989486E+00	F(X) = 2.5978606800437433E+01
J = 2	X = 1.1803398874989486E+00	F(X) = 8.0213931995625689E+00
J = 3	X = -2.6393202250021028E+00	F(X) = 2.2368347645024215E+01
J = 4	X = -1.4410524493997139E+00	F(X) = 2.6976936181159068E+01
J = 5	X = -1.6746424834205829E+00	F(X) = 2.7375369005904350E+01
J = 6	X = -1.7563668929907299E+00	F(X) = 2.7389218128504051E+01
J = 7	X = -1.7328958134121939E+00	F(X) = 2.7392301134575852E+01
J = 8	X = -1.7319129362489494E+00	F(X) = 2.7392304746644818E+01
J = 9	X = -1.7320524430474145E+00	F(X) = 2.7392304845399366E+01
J = 10	X = -1.7320507964712586E+00	F(X) = 2.7392304845413264E+01
J = 11	X = -1.7320508075473249E+00	F(X) = 2.7392304845413264E+01
J = 12	X = -1.7320508075688756E+00	F(X) = 2.7392304845413264E+01
J = 13	X = -1.7320508075688772E+00	F(X) = 2.7392304845413264E+01
J = 14	X = -1.7320508075688772E+00	F(X) = 2.7392304845413264E+01
J = 15	X = -1.7320508075688772E+00	F(X) = 2.7392304845413264E+01
J = 16	X = -1.7320508075688772E+00	F(X) = 2.7392304845413264E+01
J = 17	X = -1.7320508075688772E+00	F(X) = 2.7392304845413264E+01

FM_FIND_MIN. Function 1 17 iterations. A relative maximum on interval $-5.0000000000E+00$ to $5.0000000000E+00$ is $x = -1.7320508075688772E+00$, $f(x) = 2.7392304845413264E+01$