

$(f = -x * x - y * y + x * y + x * x * x * x + y * y * y * y)$

function can be changed in line 6

insert intervals (a1,b1)x(a2,b2) in Domain

a1 = -10

b1 = 10

a2 = -10

b2 = 10

insert $0 < c < 1$:

0.9

insert x-axis density for local minima search, for example 10,20,50, integer:

10

insert y-axis density for local minima search, for example 10,20,50, integer:

10

insert accuracy for method, for example 100,2000,10000, integer:

100

[-0.55697289 -0.56003581]
[-0.86595257 0.86902276]
[-0.84701897 0.94009704]
[-0.93902189 0.87700551]
[-0.93842712 0.87599802]
[-0.94164461 0.87612729]
[-0.94133317 0.8862675]
[-0.93522255 0.90326621]
[-0.91294928 0.91908279]
[0.93920749 -0.84961997]
[-0.55560826 -0.55884627]
[-0.8181158 0.83317974]
[-0.93932203 0.87381225]
[-0.94298009 0.87567354]
[-0.93732348 0.87764898]
[-0.93128541 0.89337601]
[-0.91664761 0.91650664]
[-0.90089577 0.9287776]
[0.8557091 -0.93844258]
[0.94206308 -0.85063763]
[-0.55466129 -0.55492563]
[-0.90650554 0.82026216]
[-0.93922082 0.8757338]
[-0.94231305 0.88420246]
[-0.91804472 0.9183906]
[-0.89311334 0.93218292]
[-0.88355248 0.9354363]
[0.87600534 -0.93741757]
[0.87301369 -0.94252964]
[0.84368544 -0.93132714]
[-0.55680328 -0.55698403]
[-0.94416617 0.86913895]
[-0.9209522 0.92087527]
[-0.88404946 0.94310891]
[-0.87899773 0.94037991]
[-0.87860725 0.94462168]
[0.8770377 -0.94435048]
[0.87510072 -0.93751937]
[0.87575525 -0.93968933]
[0.86903833 -0.94383745]
[-0.86846013 0.94355776]
[-0.8759774 0.93995887]
[-0.87663697 0.94334388]
[-0.87733905 0.94171262]
[0.8764152 -0.93868316]

```

[ 0.87869987 -0.94341777]
[ 0.88384886 -0.94282893]
[ 0.91466599 -0.91502553]
[ 0.94383092 -0.86844614]
[0.55739973 0.55611615]
[-0.8154719  0.84011802]
[-0.87207704 0.94457302]
[-0.87612169 0.94094418]
[ 0.88426771 -0.94011924]
[ 0.89337373 -0.93235546]
[ 0.91777109 -0.91759367]
[ 0.94243208 -0.88411675]
[ 0.93879802 -0.87610236]
[ 0.83951716 -0.81412054]
[0.55450013 0.55716238]
[-0.89852202 0.93474548]
[-0.90928169 0.92878517]
[ 0.90394987 -0.93516952]
[ 0.91672129 -0.91733562]
[ 0.93309274 -0.89322945]
[ 0.93901082 -0.8770265 ]
[ 0.94405251 -0.87441731]
[ 0.94318499 -0.87306367]
[ 0.8778794  -0.81300614]
[0.55409924 0.5540982 ]
[-0.93739135 0.84567324]
[ 0.91813857 -0.91148998]
[ 0.93393332 -0.90102212]
[ 0.93614218 -0.88397001]
[ 0.94026869 -0.87781724]
[ 0.9426842  -0.87640265]
[ 0.93676907 -0.87672747]
[ 0.93413914 -0.84996043]
[ 0.82801542 -0.92932771]
[0.5549958  0.55289137]
local minima at (x,y): [[-0.9029150647675807, 0.9037107522743081], [0.5552487244930111,
0.5550670244404095], [-0.5560114285305364, -0.5576979327655018], [0.9046727498760497, -
0.9021707373995803]]

```

τα παραπάνω σημεία είναι τα κέντρα των clusters, από την διαδικασία του clustering



