三次元関数グラフ

メビウスの帯

関数　　cos([s])*(3+[t]*cos([s]/2));sin([s])*(3+[t]*cos([s]/2));[t]*sin([s]/2)

種別 x = f(s,t), y = g(s,t), z = h(s,t)

x = cos(s) * (3 + t * cos(s / 2))

y = sin(s) * (3 + t * cos(s / 2))

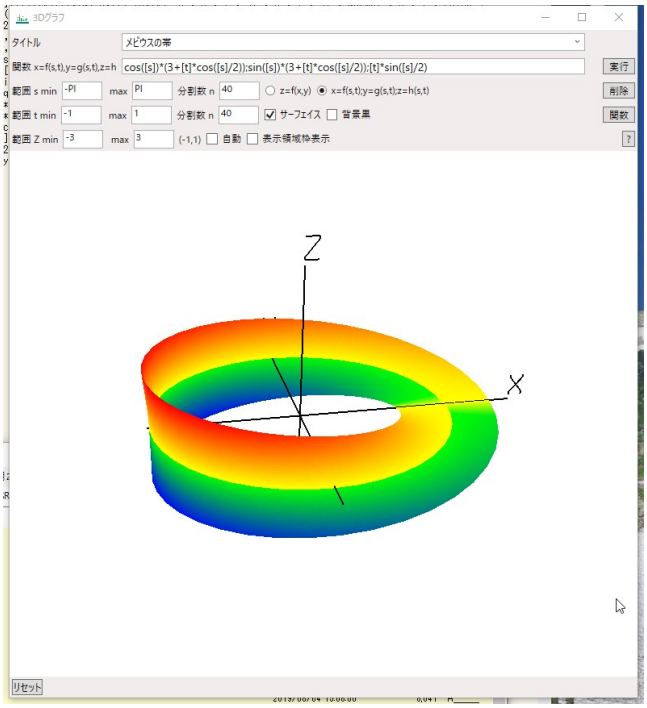
z = t * sin(s / 2)

範囲

s = -π ～ π

t = -1 ～ 1

z = -3 ～ 3



球面

関数　cos([s])*cos([t]);cos([s])*sin([t]);sin([s])

種別 x = f(s,t), y = g(s,t), z = h(s,t)

x = cos(s) * cos(t)

y = cos(s) * sint(t)

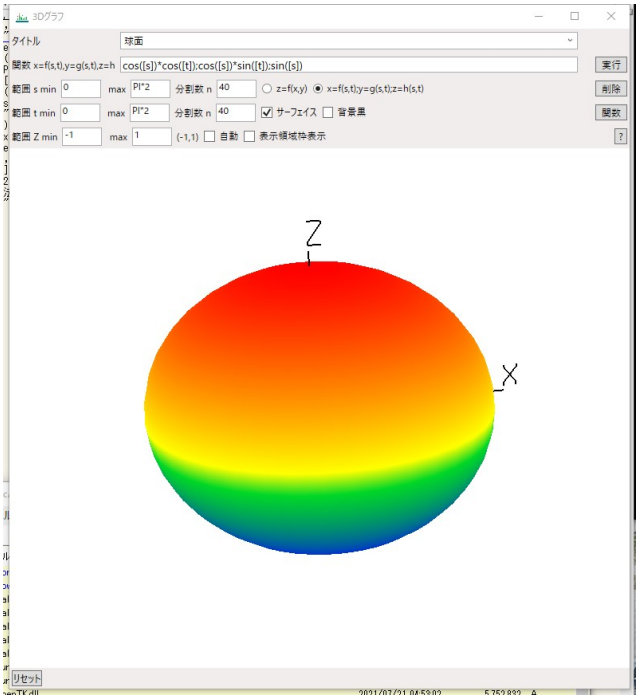
z = sin(s)

範囲

s = 0 ～ 2 π

t = 0 ～ 2 π

z = -1 ～ 1



メキシカンハット

関数　sin(sqrt([x]^2+[y]^2))/sqrt([x]^2+[y]^2)

種別 z = f(x,y)

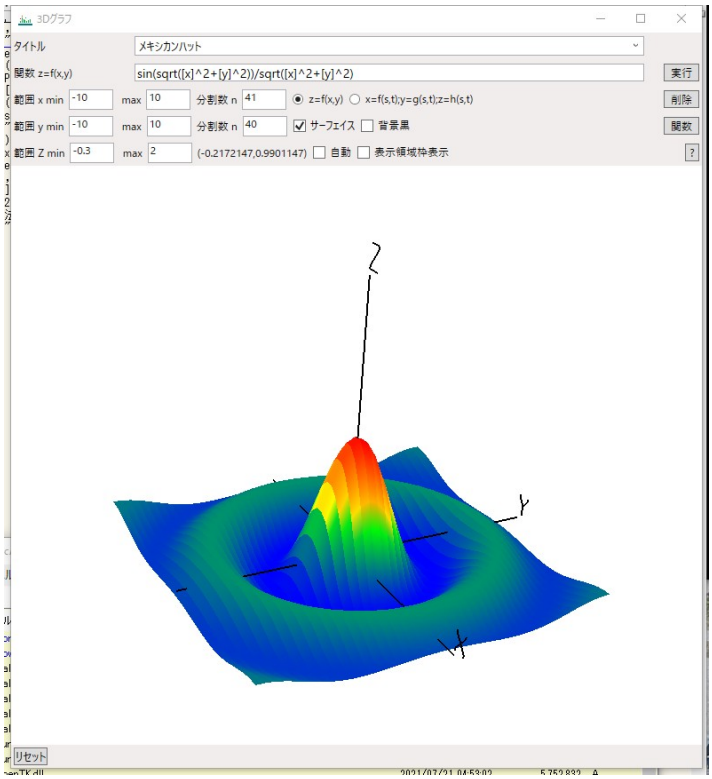
z = sin(sqrt(x^2 + y^2)) /sqrt(x^2 + y^2)

範囲

x = -10 ～ 10

y = -10 ～ 10

z = -0.3 ～ 2



メキシカンハット２

関数　[a]*cos(PI/100*sqrt([x]^2+[y]^2))+[b]*sin(PI/25*sqrt([x]^2+[y]^2));[a]=10;[b]=5

種別 z = f(x,y)

z = a * cos(π / 100 * sqrt(x^2 + y^2))

+ b * sin(π / 25 * sqrt(x^2 + y^2))

a = 10

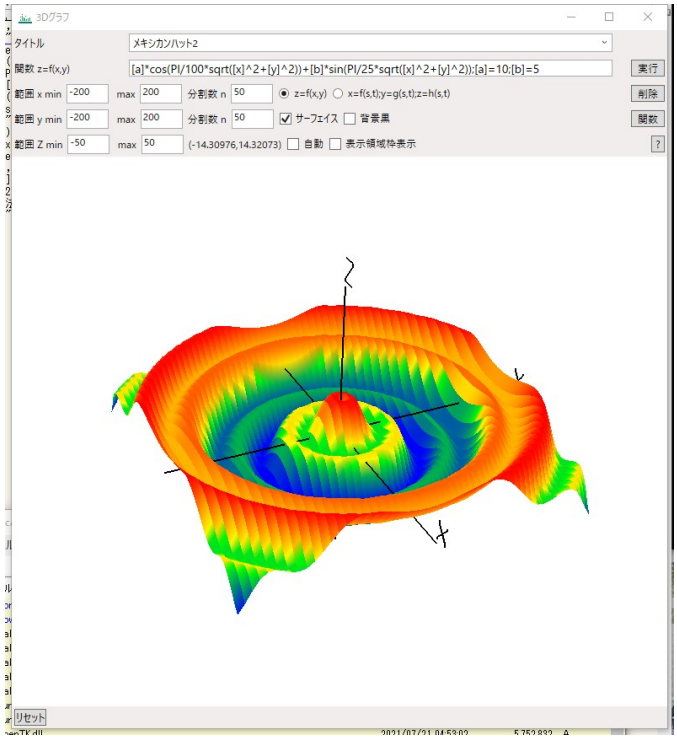
b = 5

範囲

x = -200 ～ 200

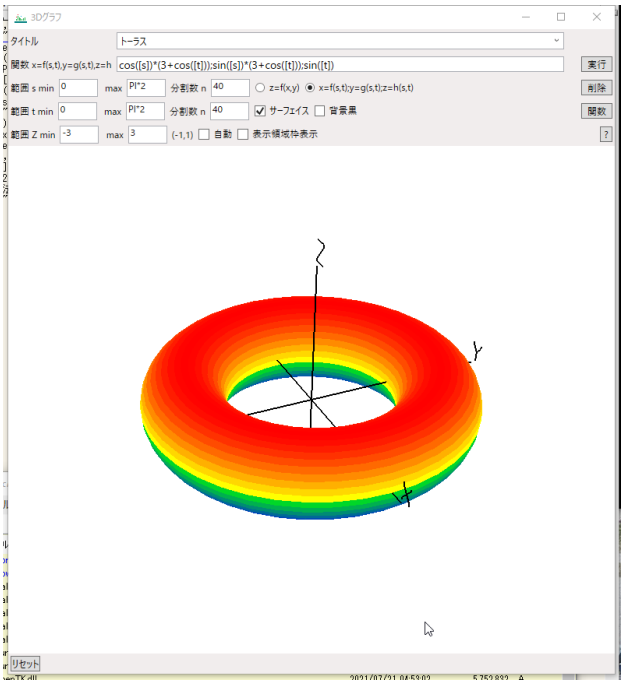
y = -200 ～ 200

z = -50 ～ 50



トーラス

関数　cos([s])*(3+cos([t]));sin([s])*(3+cos([t]));sin([t])



種別 x = f(s,t), y = g(s,t), z = h(s,t)

x = cos(s) * (3 + cos(t))

y = sin(s) * (3 + cos(t)

z = sin(t)

範囲

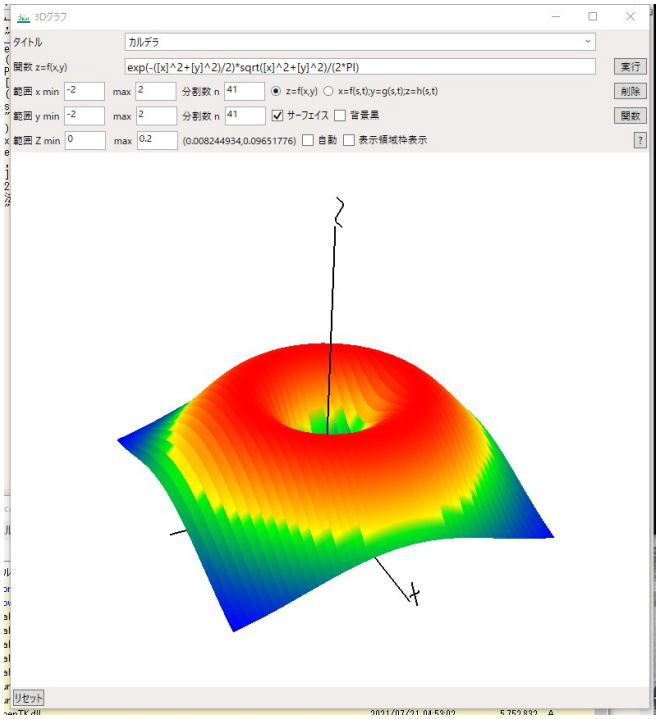
s = 0 ～ 2 π

t = 0 ～ 2 π

z = -3 ～ 3

カルデラ

関数　exp(-([x]^2+[y]^2)/2)*sqrt([x]^2+[y]^2)/(2*PI)



種別 z = f(x,y)

z = exp(-(x^2 + y^2) / /2) * sqrt(x^2 + y^2) / (2π)

範囲

x = -2 ～ 2

y = -2 ～ 2

z = 0 ～ 0.2

ばね型

関数　(5+cos([s]))*cos([t]);(5+cos([s]))*sin([t]);sin([s])+0.6*[t]

種別 x = f(s,t), y = g(s,t), z = h(s,t)

x = (5 + cos(s)) * cos(t)

y = (5 + cos(s)) * sin(t)

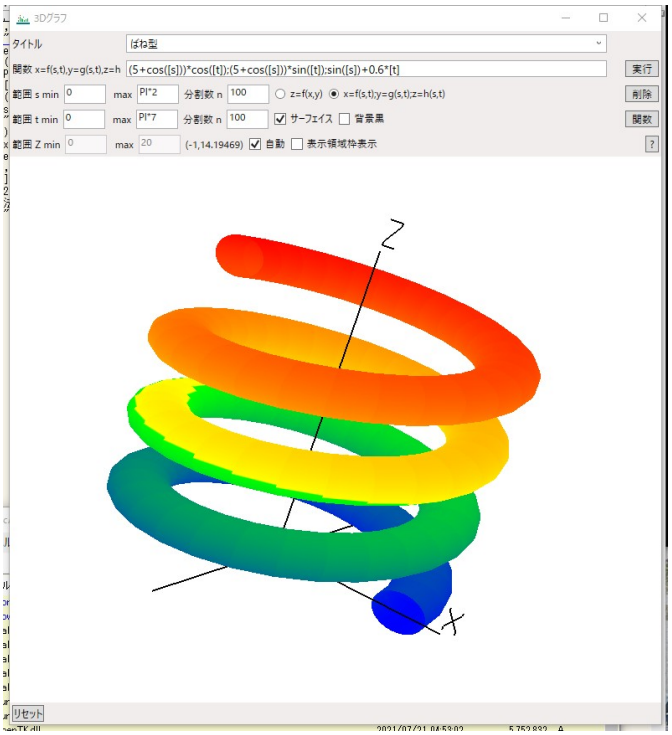
z = sin(s) + 0.6 * t

範囲

s = 0 ～ 2 π

t = 0 ～ 7 π

z = 0 ～ 20



ラクランジュの緩和法

関数　([x]^2+[y]^2)/2;-[x]-[y]+2;[x]-[y]+2

種別 z = f(x,y)

z = (x^2 + y^2) / 2

z = -x -y + 2

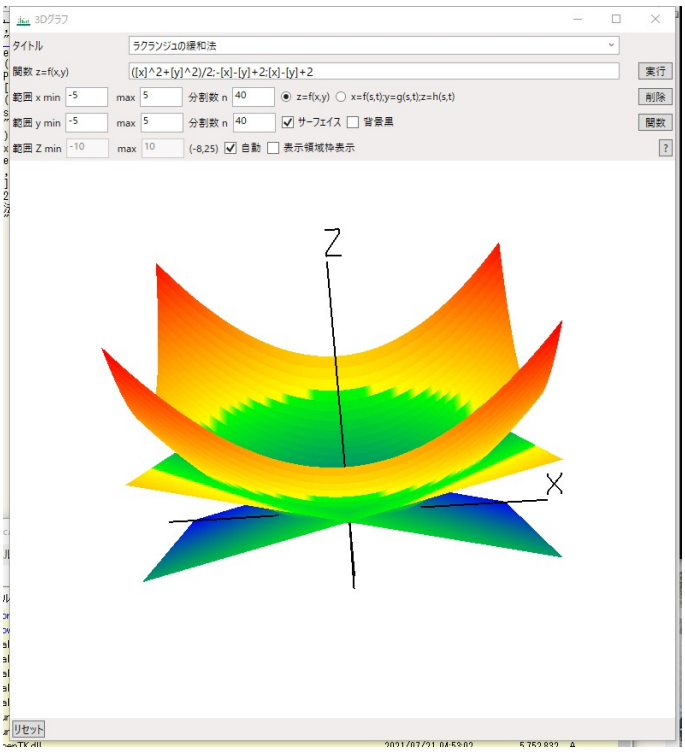
z = x - y + 2

範囲

x = -5 ～ 5

y = -5 ～ 5

z = auto



少し陥没した鞍型

関数　3*exp(-([x]^2+[y]^2))*(2*[x]^2+[y]^2)

種別 x = f(s,t), y = g(s,t), z = h(s,t)

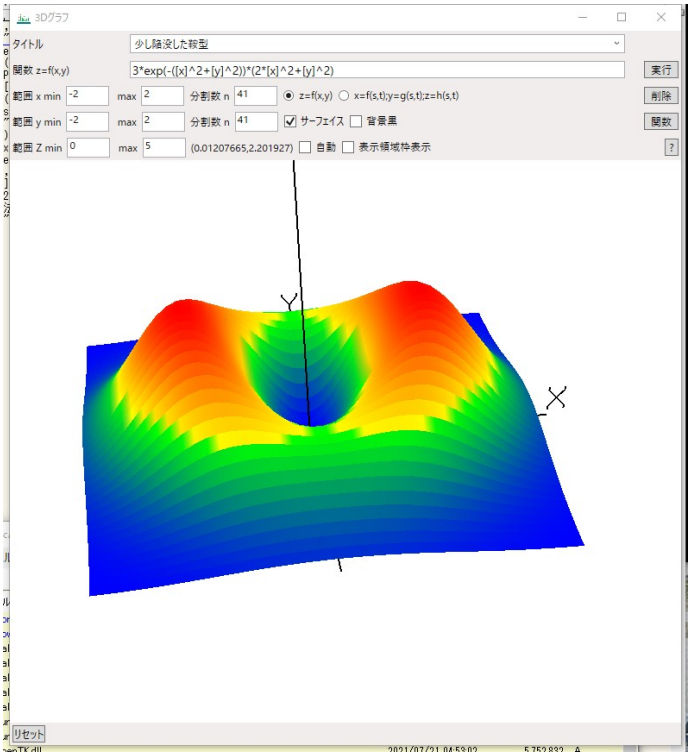
z = 3 * exp(-(x^2 + y^2)) * (2 * x^2 + y^2)

範囲

x = -2 ～ 2

y = -2 ～ 2

z = 0 ～5



ジグモイド

関数　1/(1+exp(-[u]));[u]=5*[x]+10*[y]-10

種別 z = f(x,y)

z = 1 /(1 + exp(-u))

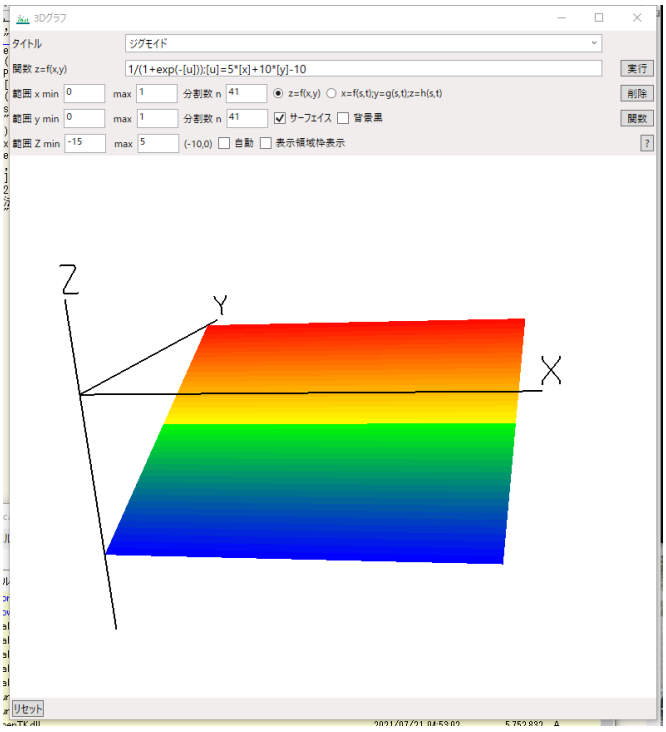
u = 5 * x + 10 * y - 10

範囲

x = 0 ～ 1

y = 0 ～ 1

z = -15 ～ 5



ニューロン

関数　1/(1+exp(-([u]*[x]+[v]*[y]+[w])));[u]=5;[v]=10;[w]=-5

種別 z = f(x,y)

z = 1 /(1 + exp(-(u * x + v * y + w)))

u = 5

v = 10

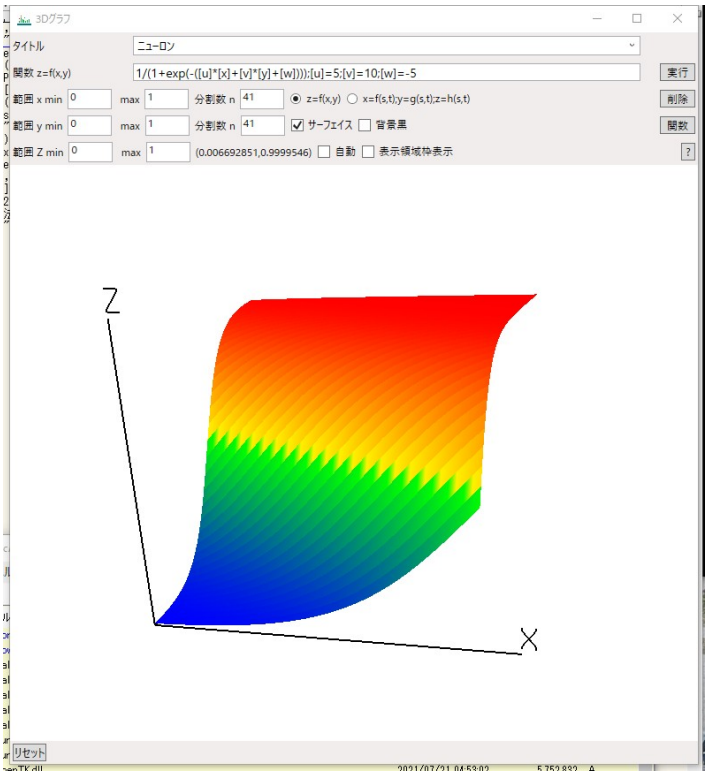
w = 5

範囲

x = 0 ～ 1

y = 0 ～ 1

z = 0 ～ 1



サンプル

関数　50*cos(PI/100*sqrt([x]^2+[y]^2))+5*sin(PI/25*sqrt([x]^2+[y]^2))

種別 z = f(x,y)

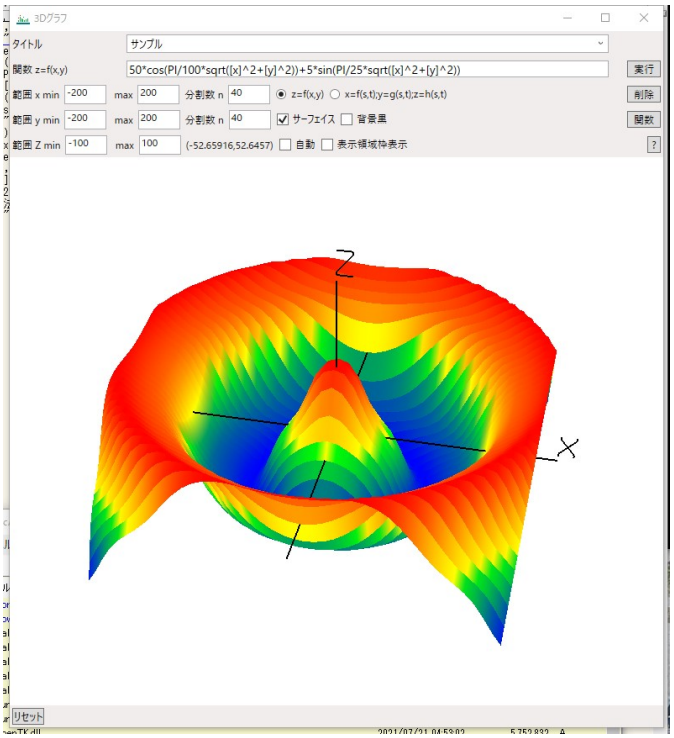
z = 50 * cos(π / 100 * sqrt(x^2 + y^2)) + 5 * sin(π / 25 * sqrt(x^2 + y^2)

範囲

x = -200 ～ 200

y = -200 ～ 200

z = -100 ～ 100



クロスエントロピー

関数　-[x]*log([y])-(1-[x])*log(1-[y])

種別 z = f(x,y)

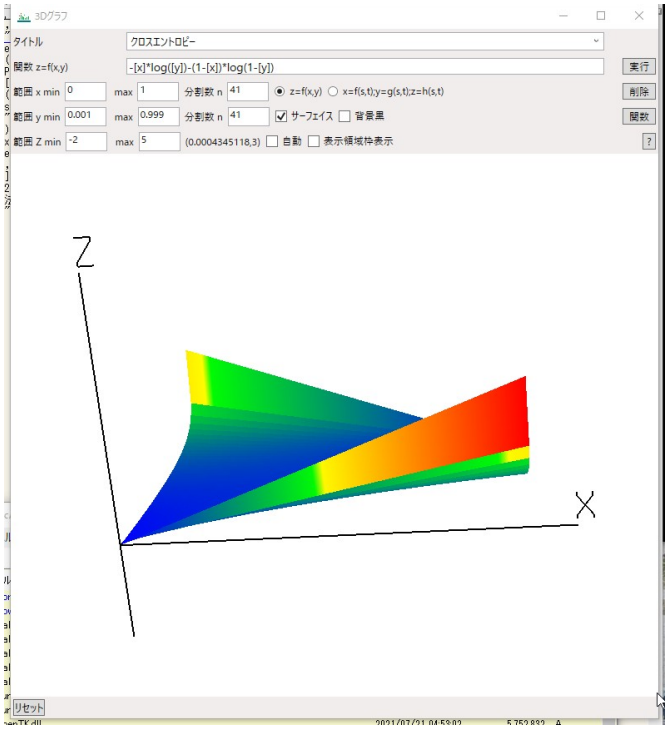
z = -x * log(y) - (1 - x) * log(1 - y)

範囲

x = 0 ～ 1

y = 0.001 ～ 0.999

z = -2 ～5



クロスエントロピー２

関数　(-[a]*log([x])-(1-[a])*log(1-[x]))+(-[b]*log([y])-(1-[b])*log(1-[y]));[a]=1;[b]=0

種別 z = f(x,y)

z = (-a * log(x)) - (1 - a) * log(1 - x)) + (-b * log(y) - (1 - b) * log(1 - y))

a = 1

b =0

範囲

x = 0.01 ～ 0.99

y = 0.01 ～ 0.99

z = 0 ～ 5