Find minimum

You may use gmp, BigDecimal, MatLab, Maple, Mathematica or other existing software.

Given the equation:

```
z = exp(sin(50.0*x)) + sin(60.0*exp(y)) +
    sin(80.0*sin(x)) + sin(sin(70.0*y)) -
    sin(10.0*(x+y)) + (x*x+y*y)/4.0
```

Find the global minimum -1 < x < 1 , -1 < y < 1

There are many local minima, do not get stuck in one of them.
A global search with dx and dy < 0.0025 should be in the
global minimum, ≤ 0.001 is better.
From inspection, the minimum z is roughly between -3 and -4

From the global search starting point, use optimization.
Do not allow dx, dy to get too small, roundoff error if less than
1.0E-16 in 64 bit floating point
1.0E-100 in multiple precision

Print your x and y and z.
I would expect, all to the same number of digits accuracy.

Your points are based on the accuracy of your computed
"x", "y", "z".
Your largest error in x, y, or z rounded to significant digits:

2 digits	50 points
3 digits	70 points
4 digits	75 points
5 digits	80 points
6 digits	85 points
7 digits	86 points
8 digits	87 points
9 digits	88 points
10 digits	89 points
11 digits	90 points
12 digits	91 points
13 digits	92 points
14 digits	93 points
15 digits	94 points
16 digits	95 points
100 digits	100 points

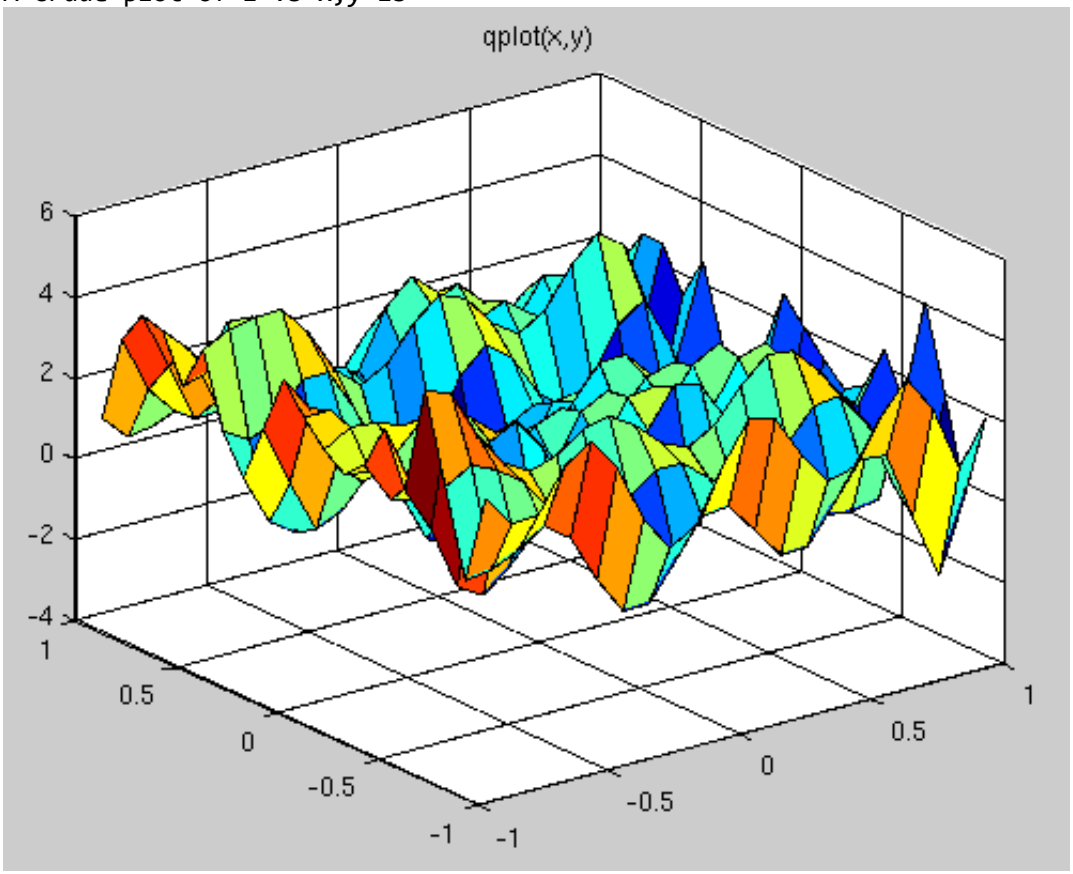
Submitting your Project

The project source and output is to be submitted on GL as
  submit cs455 proj list-of-files
  etc.

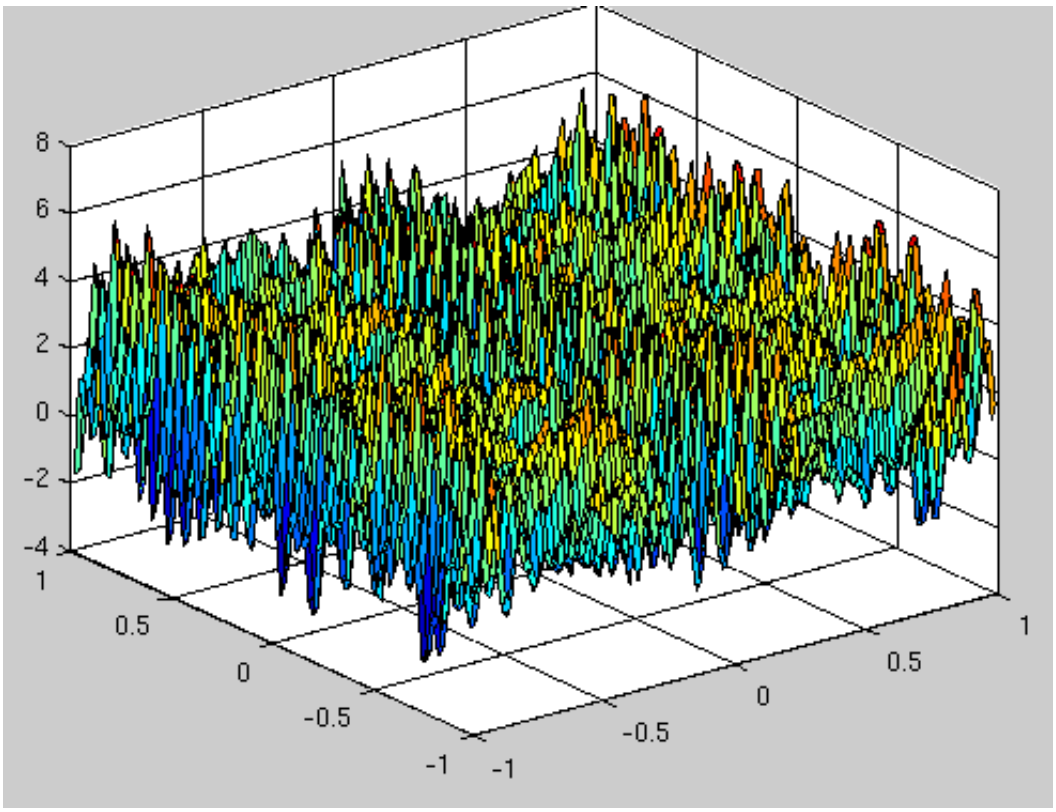
The list-of-files should include source code and output
and other files that were used.
Do not submit executable file(s).

Use a language of your choice on an operating system
of your choice. Talk to the
instructor if your language choice is not one of:
Ada 95, C, C++, Fortran 95, Java, Python, Scala, SML, MATLAB,
Maple, Mathematica, or similar available language or product.

A crude plot of z vs x,y is



A smaller dx,dy plot


8
6
4
2
0
-2
-4
1
0.5
0
-0.5
-1
-1
-0.5
0
0.5
1