## Exercise

**Task.** Solve the Poisson equation

$$\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} + 2 = 0$$
,  $u = 0$  on boundary

for a square region a by a, a = 1 using

- a) Liebman method;
- b) SOR method with overrelaxation factor 1.6.

For both methods use grid n by n cells with h=0.1 and h=0.05 and error tolerance  $\varepsilon=1.0e-10$ .

Create computer code, which performs solutions.

## Exercise (cont)

Output of your code should contain:

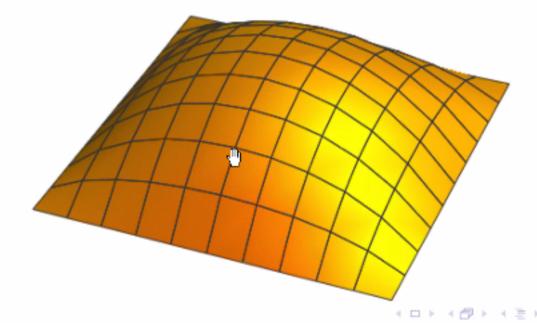
n = number of cells in each direction;

h = stepsize;

iter = number of iterations;

function values along line y = 0.5

Graphical illustration of solution for h=0.1



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