Solution of Poisson Equation in 2D using Finite Difference Method

# Solution with different number of mesh points:

# N=10



# N=25



# N=50



# N=75



# N=100



From above plots it is evident that for mesh points 50 or greater, solution is almost the same.

# Plot of solution for different source functions:



As there is no source present so the resulting solution is also null as anticipated.

Constant source is present, and boundary are homogenous, so the solution profile is concentrated in the center.



Solution profile skewed towards right, following the source distribution which is distributed linearly in x direction.



As source is distributed in both x and y linearly that’s why solution in now skewed in increasing direction of both x and y.



As anticipated, the non-linearity in source is followed in the solution as depicted above.