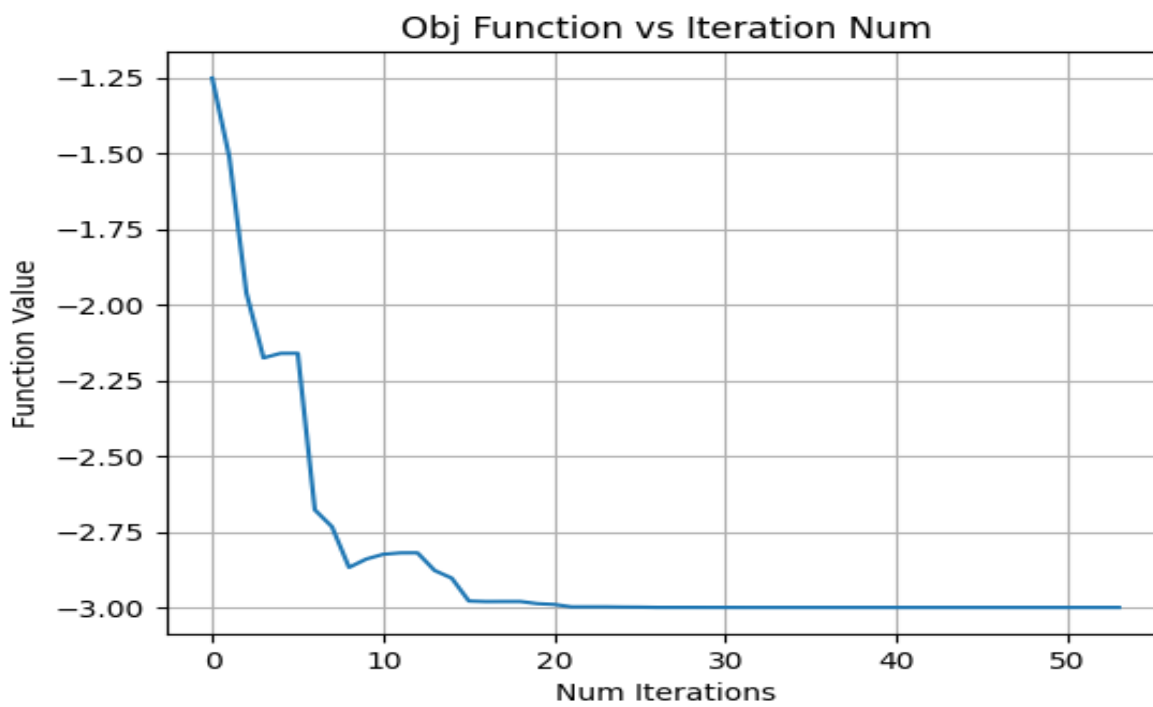
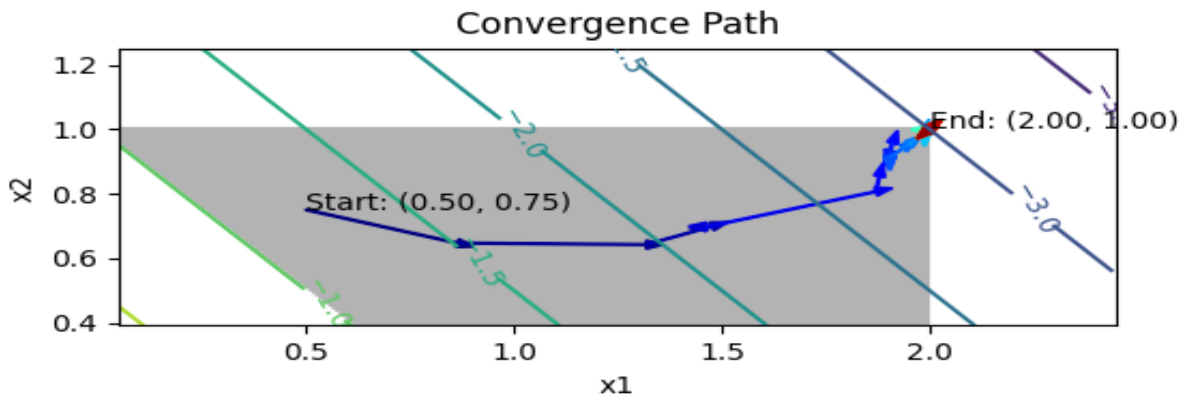


# Constrained Linear Programing Report

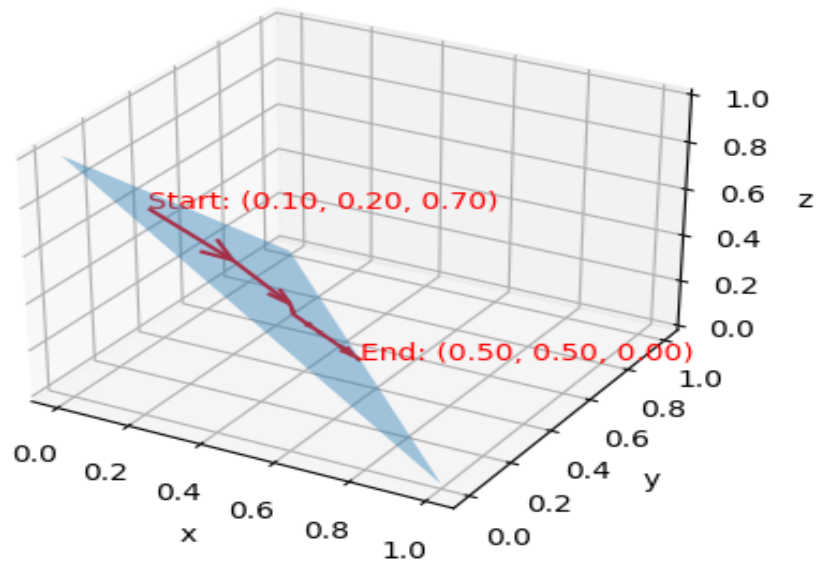


Converged at  $X = [2. \ 1.]$ , Objective function value:-2.9999999939246615, m/t sub-optimality:4e-10

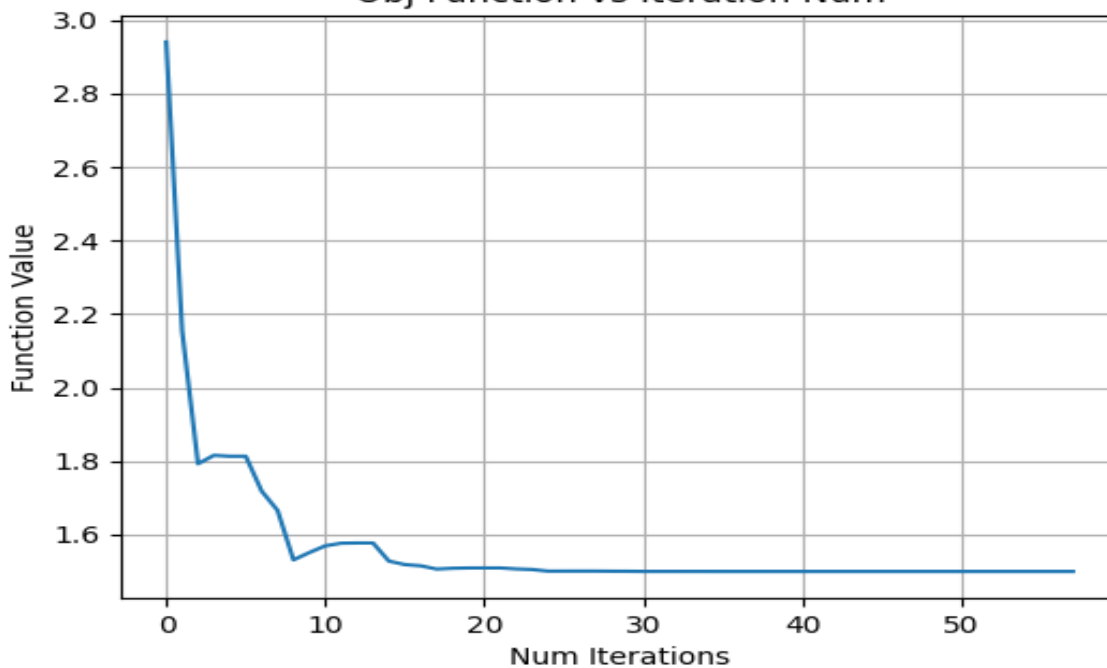
Number of outer iterations: 10, number of total inner iterations: 54, final t value: 10000000000

# Constrained Quadratic Programing Report

Convergence Path



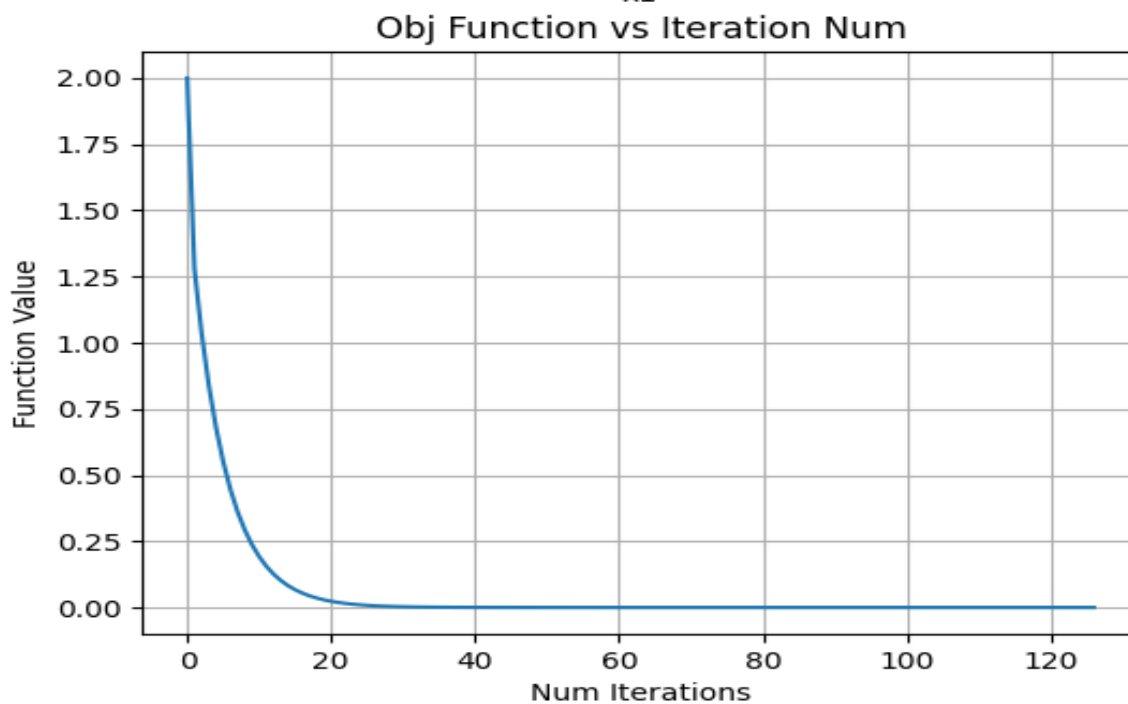
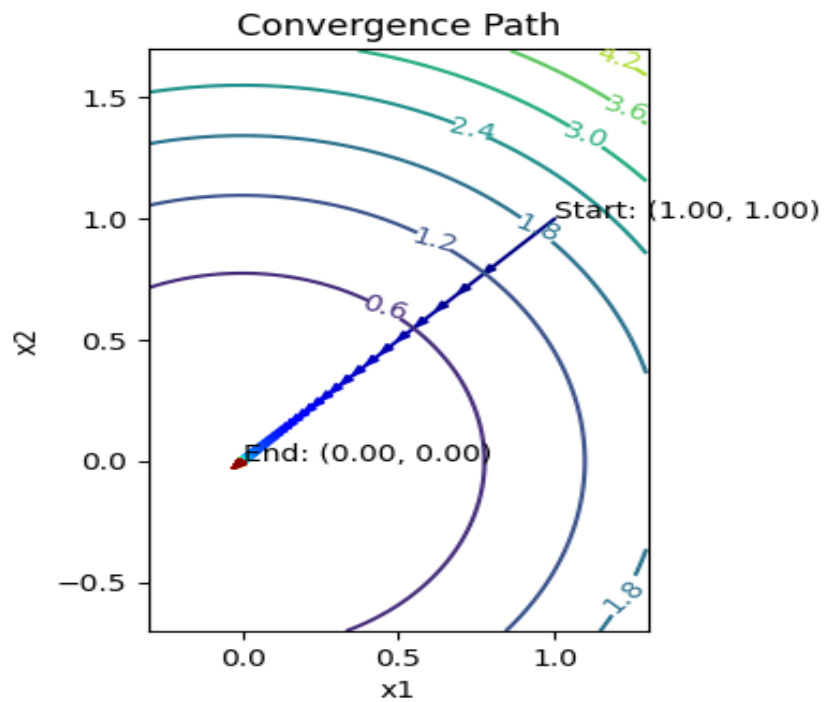
Obj Function vs Iteration Num



Converged at  $X = [5.e-01 \ 5.e-01 \ 1.e-09]$ , Objective function value:1.5000000032109555, m/t sub-optimality:3e-10

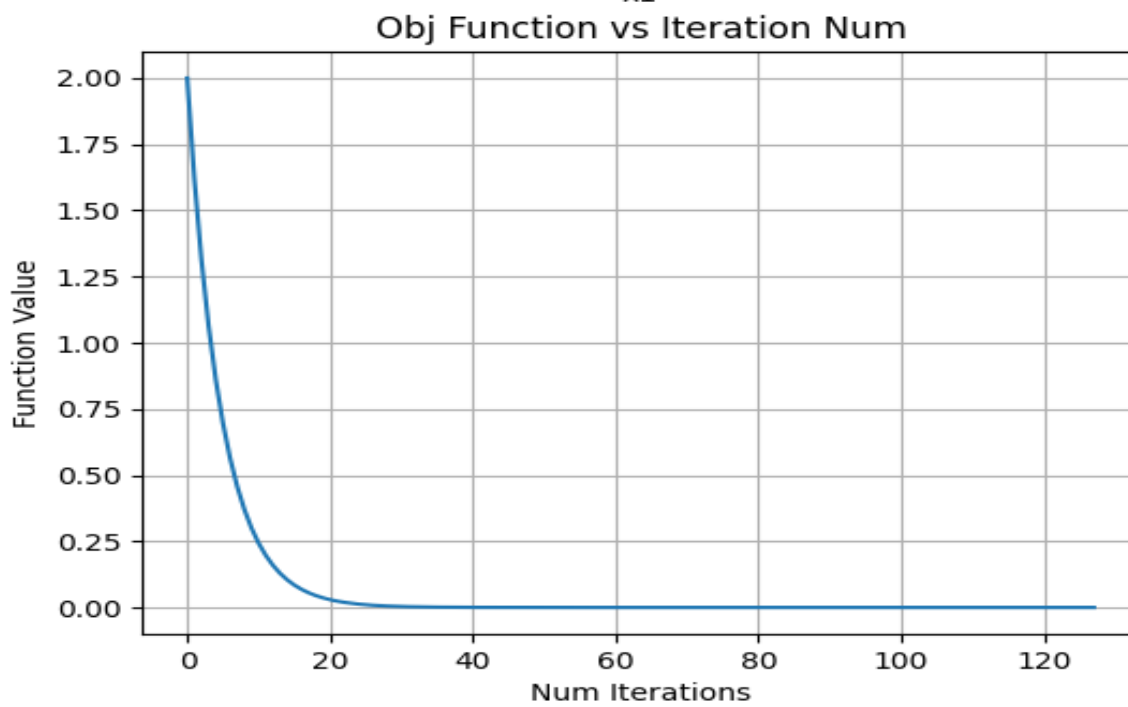
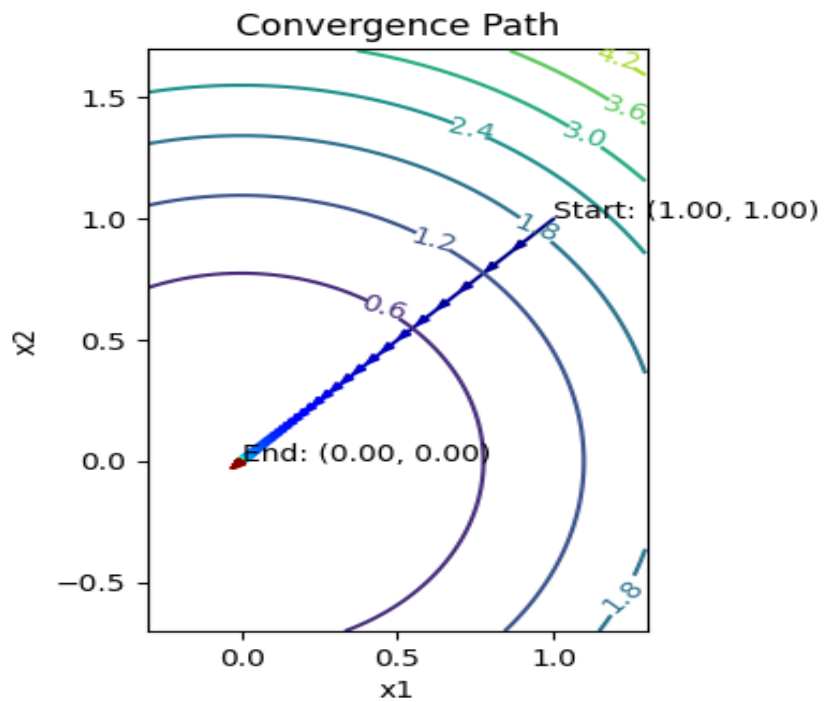
Number of outer iterations: 10, number of total inner iterations: 58, final t value: 10000000000

## Quad Function 1, Direction Algorithm - bfgs



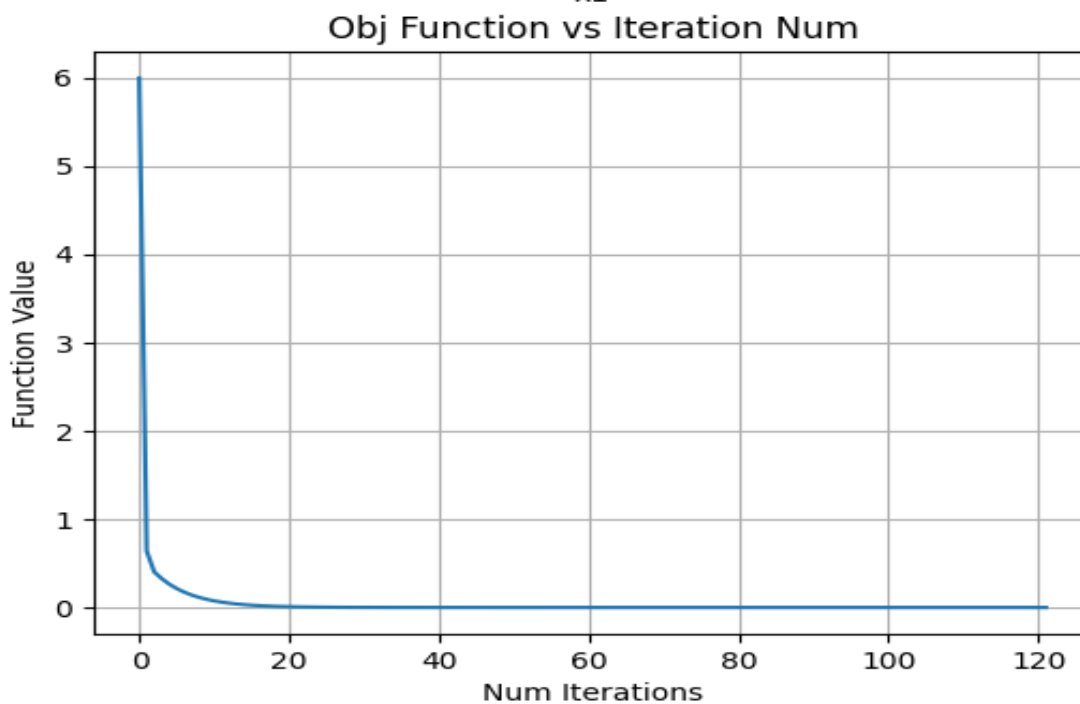
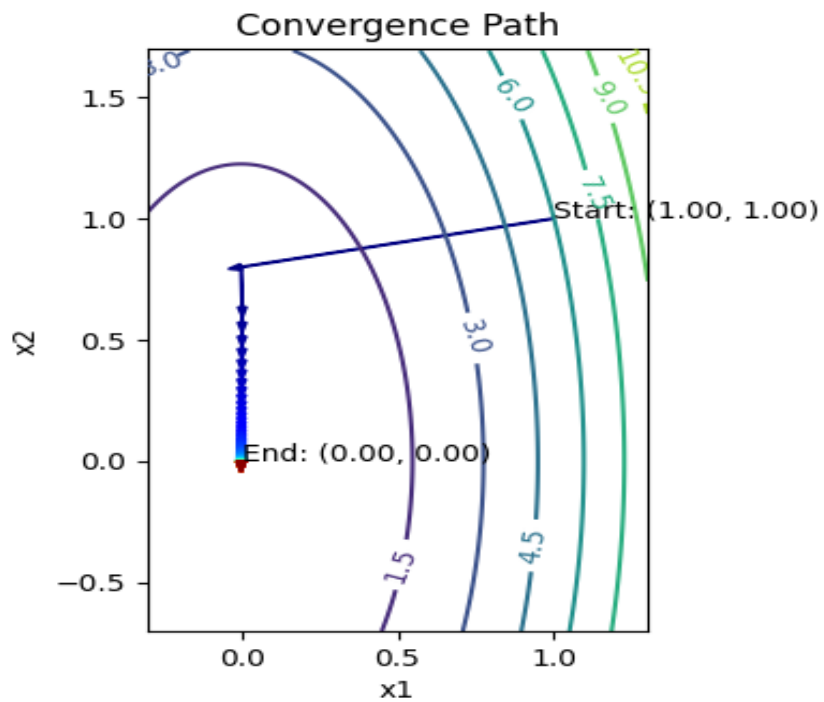
Iteration number: 126 New location: [1.37e-06 1.37e-06], New value: [3.77e-12], Step length: [2.16e-07], Objective function change: [8.84e-13], Convergence achieved!

## Quad Function 1, Direction Algorithm - nt



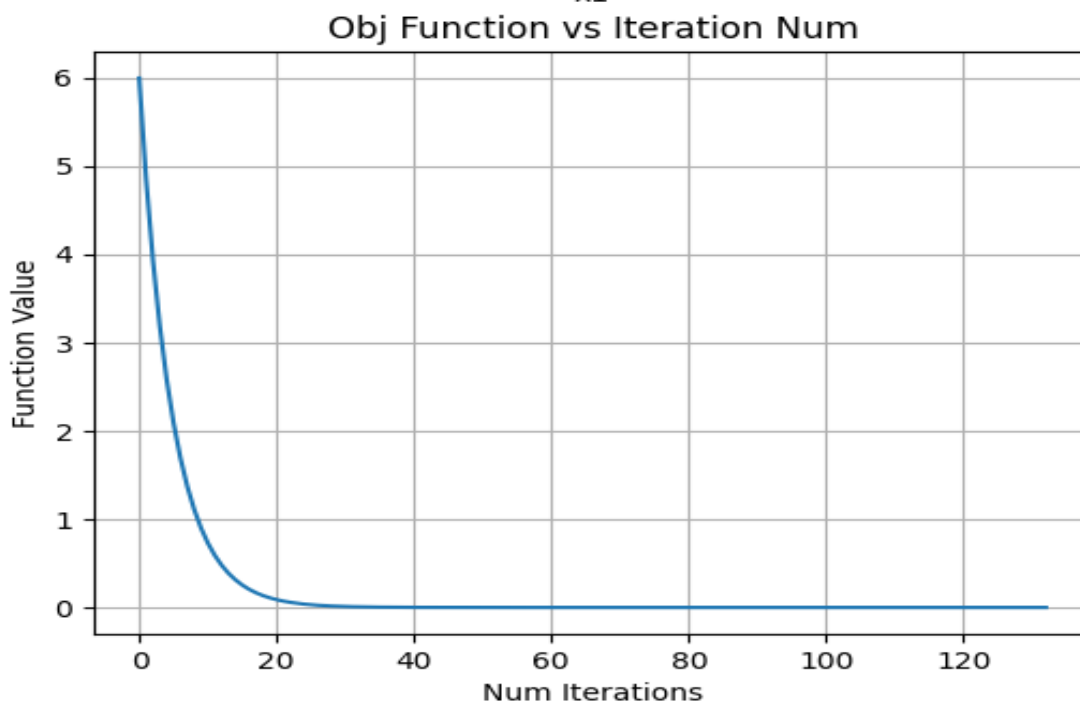
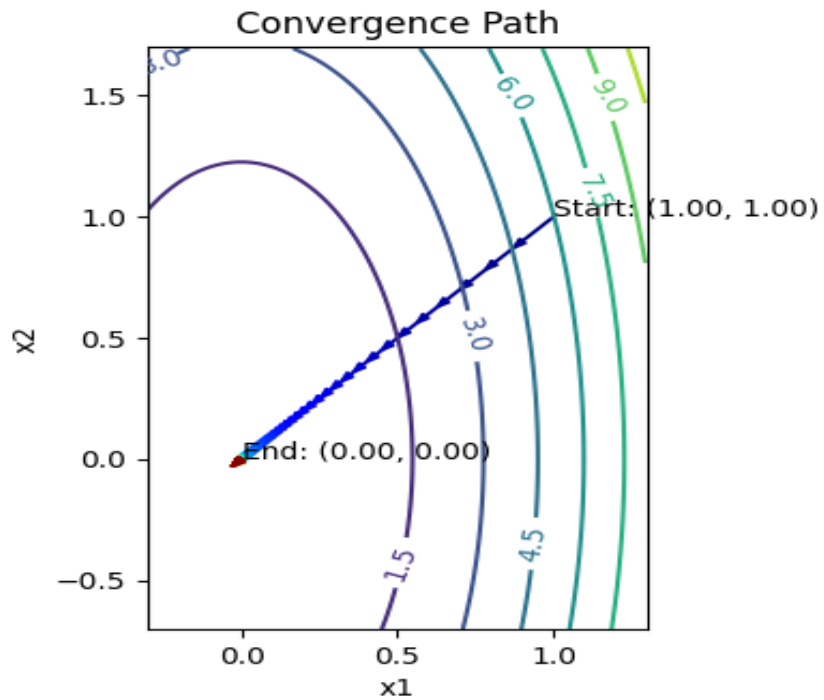
Iteration number: 127 New location: [1.39e-06 1.39e-06], New value: [3.86e-12], Step length: [2.18e-07], Objective function change: [9.07e-13], Convergence achieved!

## Quad Function 2, Direction Algorithm - bfgs



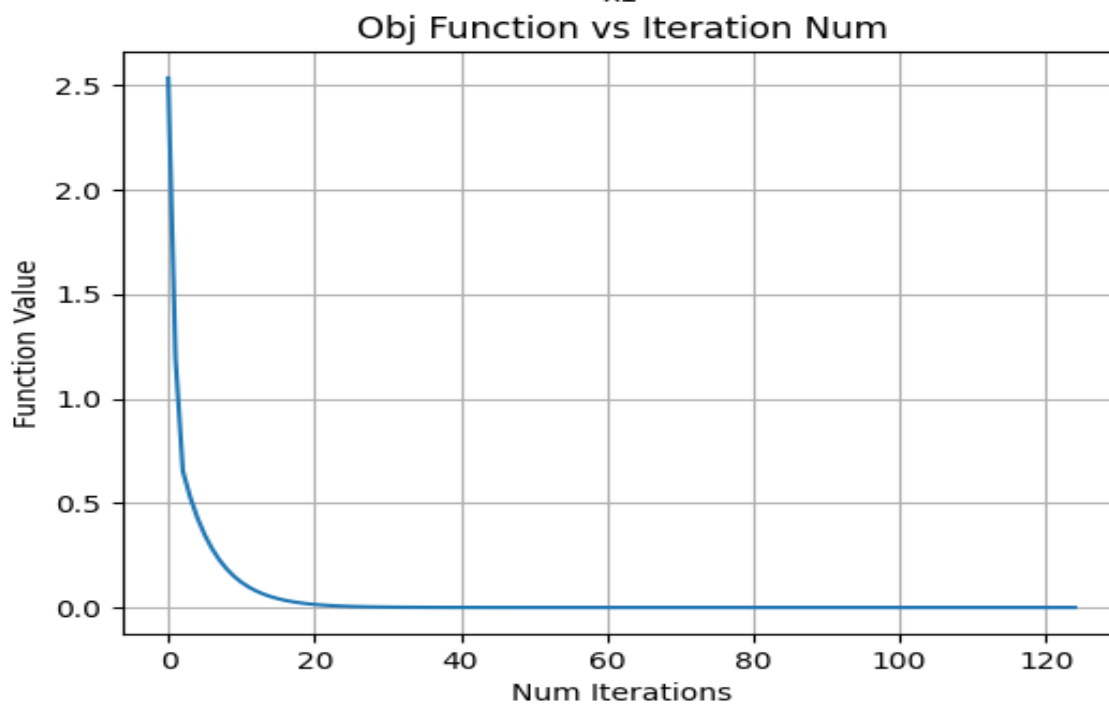
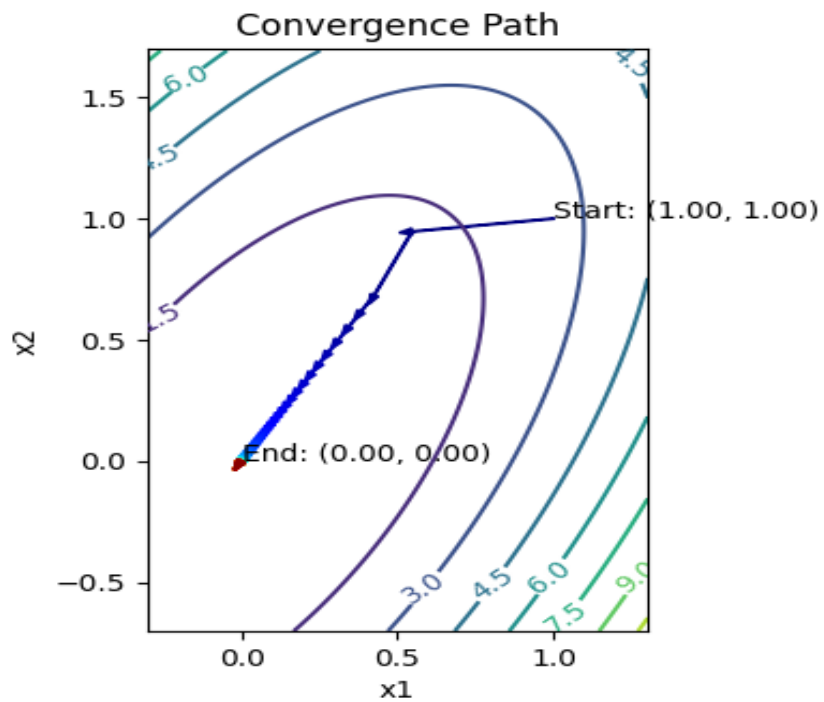
Iteration number: 121 New location: [1.09e-08 2.05e-06], New value: [4.21e-12], Step length: [2.28e-07], Objective function change: [9.88e-13], Convergence achieved!

## Quad Function 2, Direction Algorithm - nt



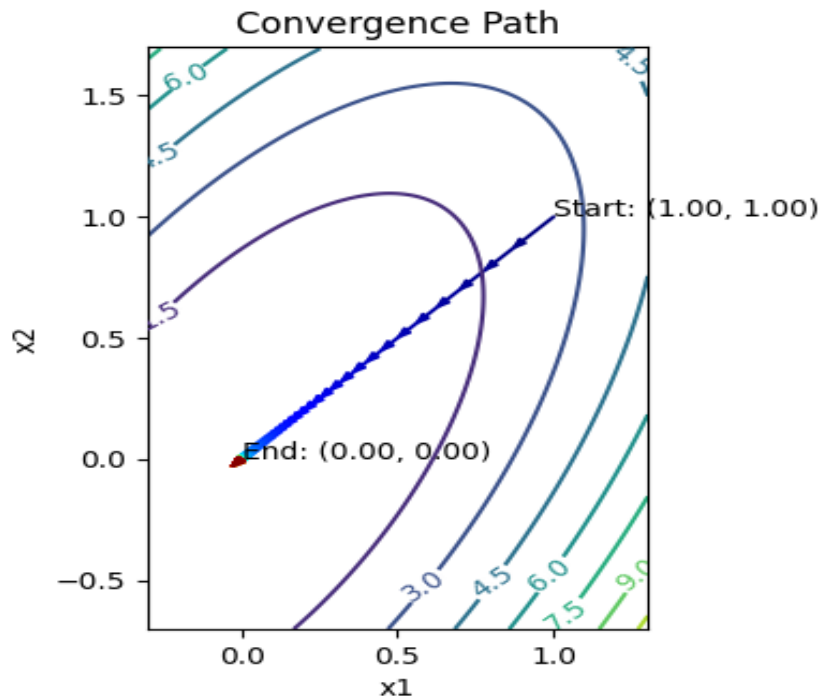
Iteration number: 132 New location: [8.21e-07 8.21e-07], New value: [4.04e-12], Step length: [1.29e-07], Objective function change: [9.48e-13], Convergence achieved!

## Quad Function 3, Direction Algorithm - bfgs



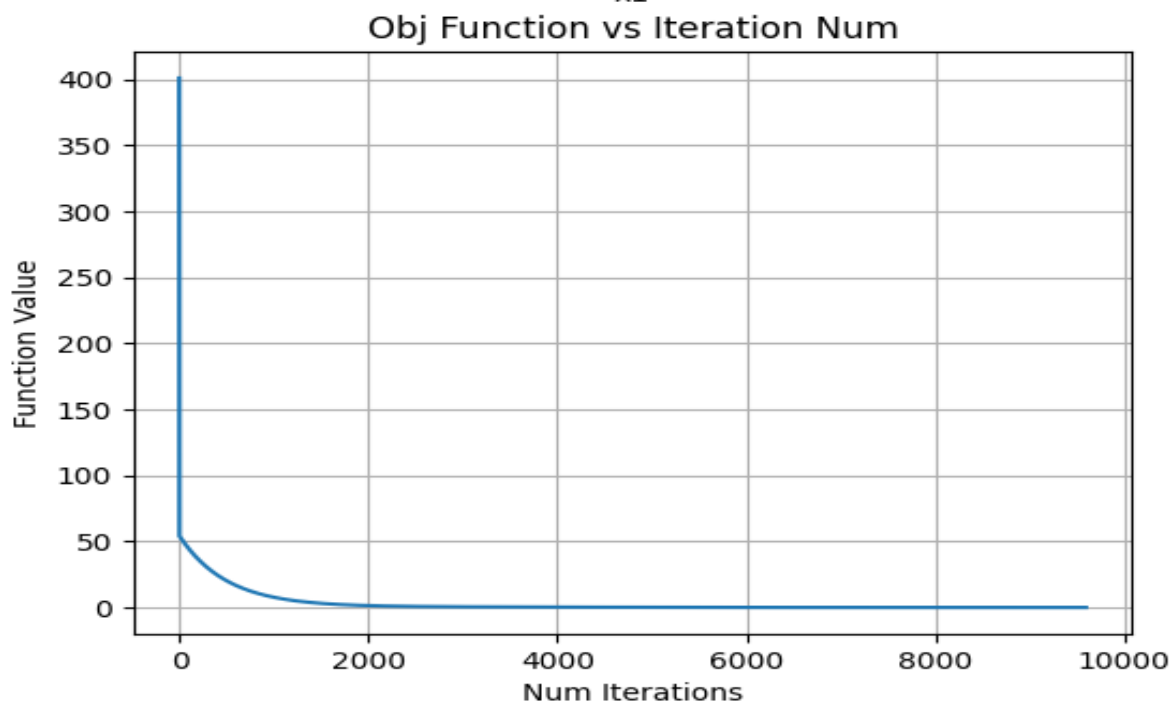
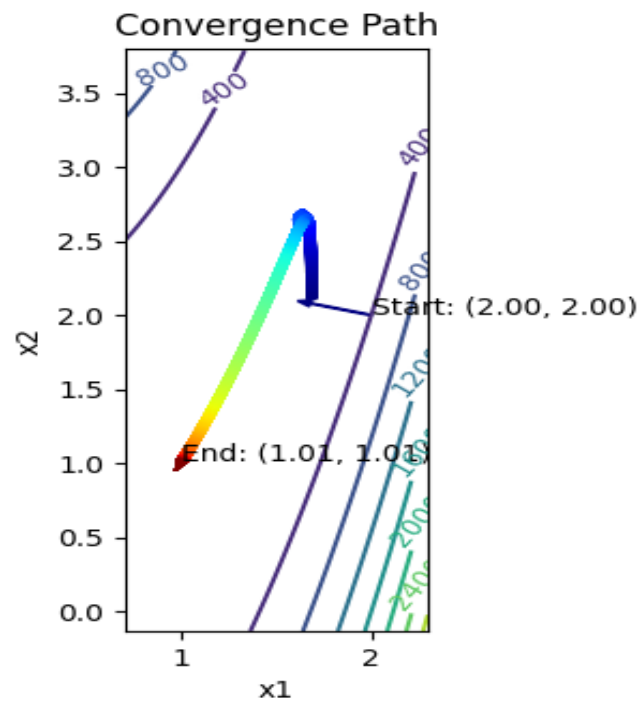
Iteration number: 124 New location: [1.00e-06 1.61e-06], New value: [3.62e-12], Step length: [2.11e-07], Objective function change: [8.49e-13], Convergence achieved!

## Quad Function 3, Direction Algorithm - nt



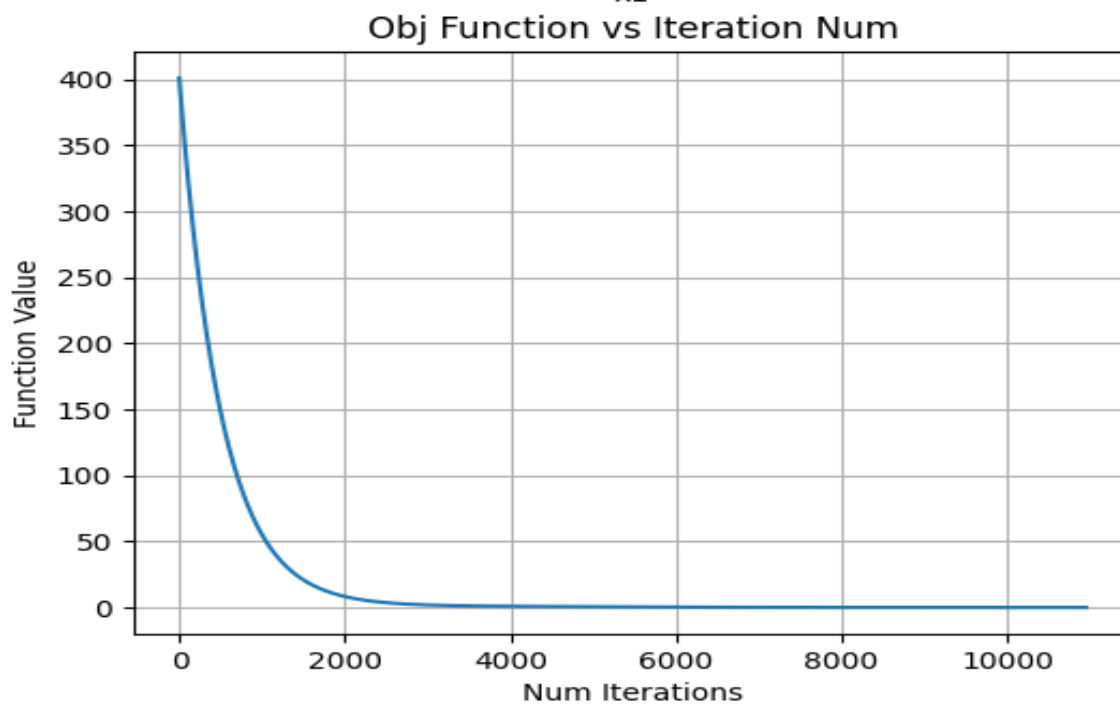
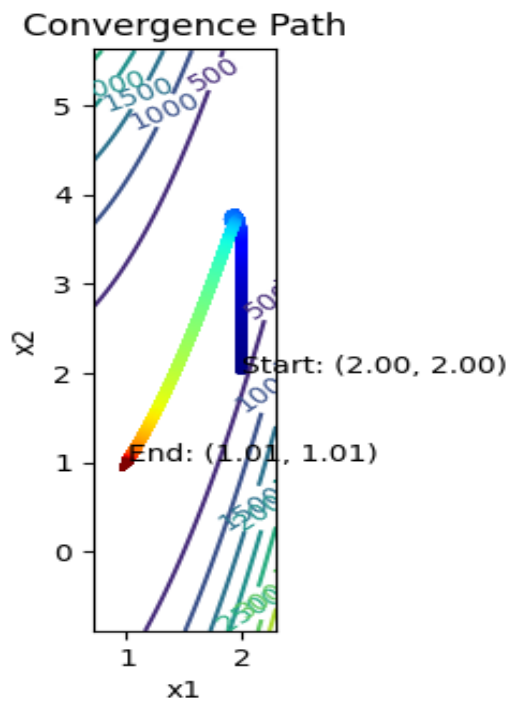


## Rosenbrock Function, Direction Algorithm - bfgs



Iteration number: 9593 New location: [1.01 1.01], New value: [5.04e-05], Step length: [1.57e-05], Objective function change: [9.99e-08], Convergence achieved!

## Rosenbrock Function, Direction Algorithm - nt



Iteration number: 10948 New location: [1.01 1.01], New value: [5.03e-05], Step length: [1.58e-05], Objective function change: [1.e-07], Convergence achieved!