**Project I Shortest distance searching**

**Problem:**

A polynomial surface is defined as the following equation,

where . Now if a query curve is specified, please use the gradient method to find the shortest distance between and **.**

(a).

(b).

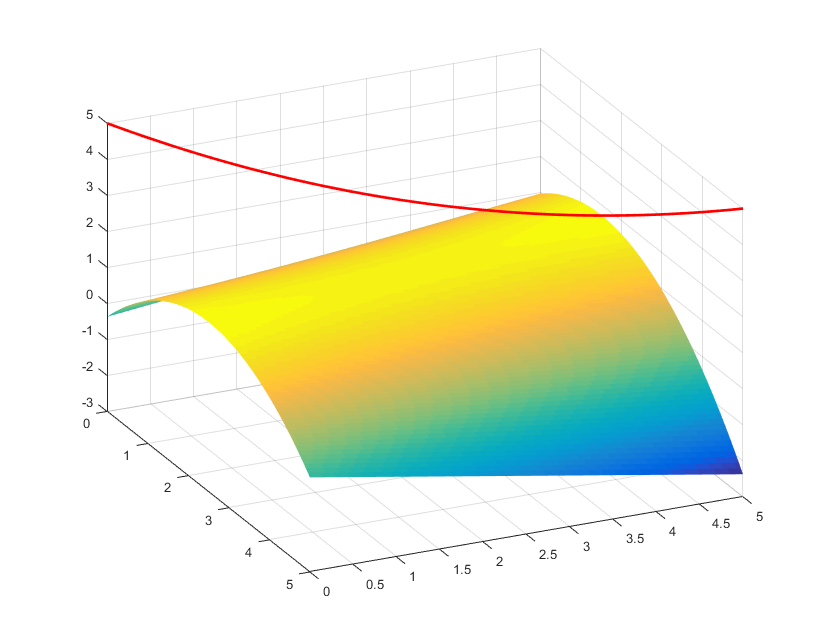


Figure 1

**Requirement:**

1. Develop a MATLAB function based on the gradient method in order to find the shortest distance between and , and the corresponding points on and .
2. Find the shortest distance for both two query curves and . Display the shortest path on the plot with the query curve and the surface (e.g. Figure1)

**Submission:**

Please submit a report fulfilled all of requirements includes the results for both queries, as well as the relative m files. The due of this project is 11/27/2017.