Homework Assignment 5
Optimal Control- MAE 274
Prof. Solmaz S. Kia

Turn in your HW electronically to the respective folder in Canvas.

➢ Do the following problems from reference [1] (Kirk, see the class syllabus for the list of references)
(turn in the following problems): 4.10(b), 4.13, 4.15, 4.20, 4.24(a)

➢ Find the curve passing through the points (x_1, y_1) and (x_2, y_2) which when rotated about the x-axis gives a minimum surface.
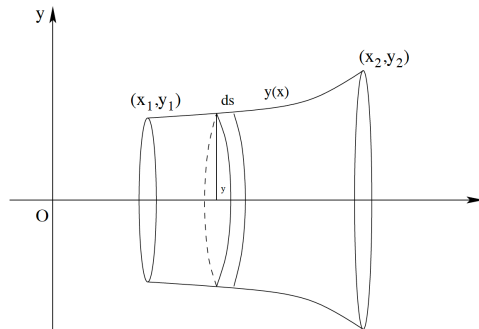
Note: Let ds be a small strip on the curve y. Area of the surface generated by ds when revolved is $2\pi y ds$.

You do not need to turn in the following problems
➢ 4.4 (a), 4.4(b), 4.25 (from ref[1])

➢ **Brachistochrone Problem (shortest time of descent problem)**: Find the shortest path on which a particle in the absence of friction will slide from one point to another point (these points are given) on a 2D vertical plane in the shortest time under the action of gravity.