

Continuous optimization

PGE305

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Exercise 4

- The cost function is linear, therefore it is convex:

$$\sum_{i=1}^N y_i.$$

- The four equality constraints are affine:

$$x_1 - x_I = 0, \quad y_1 - y_I = 0, \quad x_N - x_F = 0, \quad y_N - y_F = 0.$$

- The inequalities are convex:

$$-\left((x(i+1) - x(i))^2 + (y(i+1) - y(i))^2 \right) + 1 \geq 0.$$

By a theorem of the lecture, any feasible satisfying the KKT conditions is a global solution to the problem.

Exercise 4

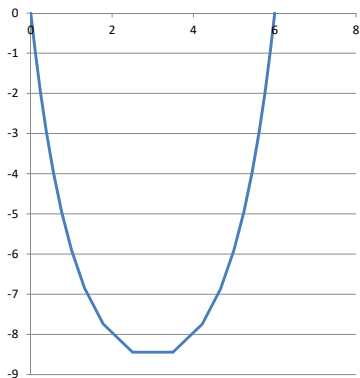


Figure: Hanging chain (20 pearls)

Exercise 4



Figure: Power lines