16 - 748   Problem Set 1
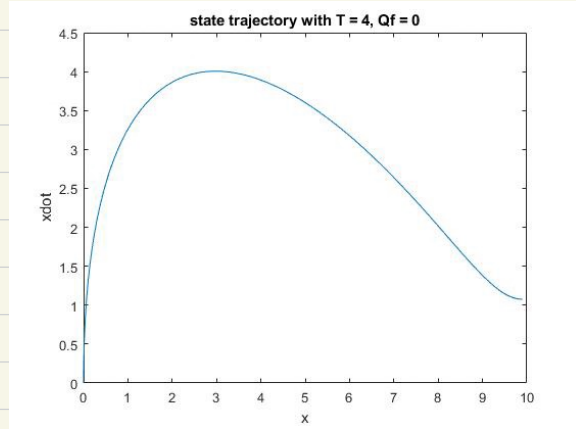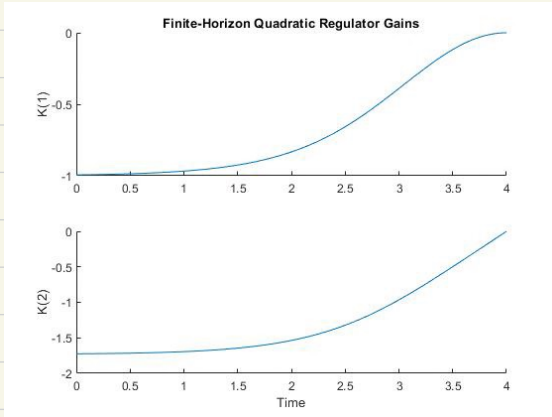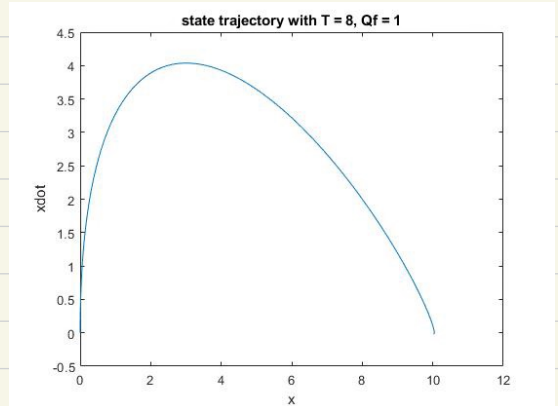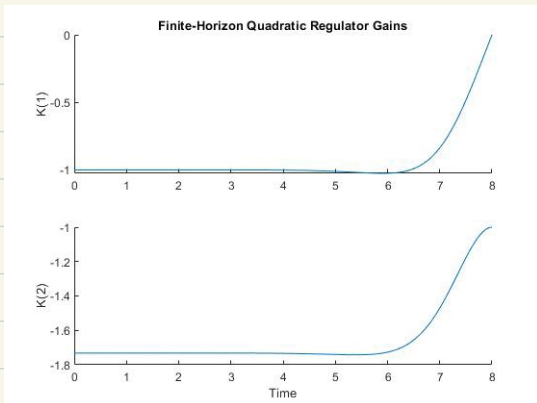Qishun Yu
qishuny @ andrew. cmu. edu
work with Huaiqian Shou
Problem 1.
a)

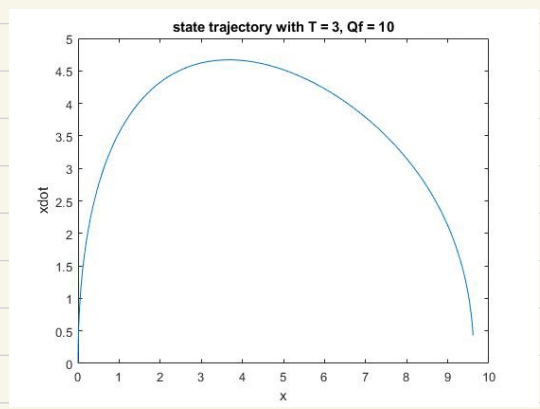Finite-Horizon Quadratic Regulator Gains

state trajectory with T = 4, Qf = 0

b)

Finite-Horizon Quadratic Regulator Gains

state trajectory with T = 8, Qf = 1

c)

Finite-Horizon Quadratic Regulator Gains

state trajectory with T = 3, Qf = 10

d)

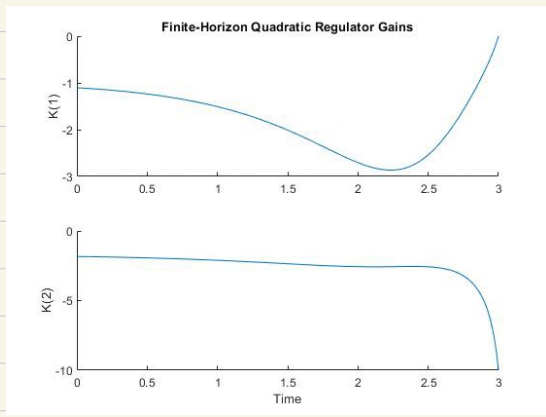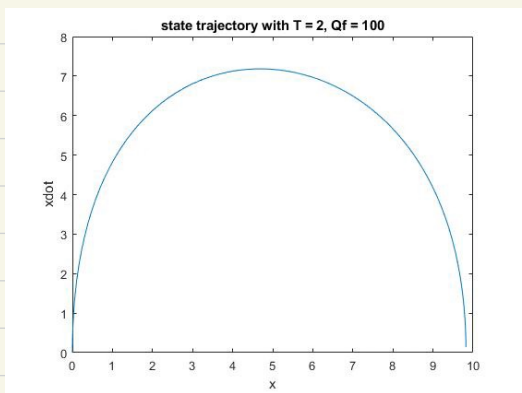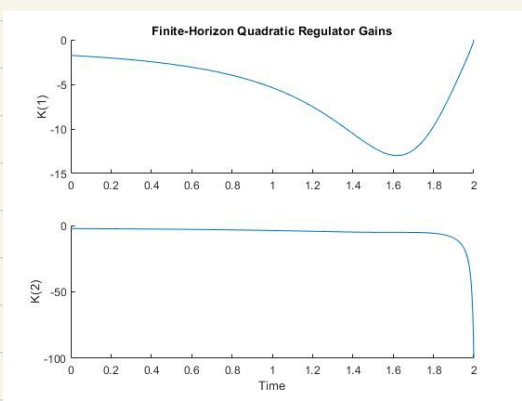Finite-Horizon Quadratic Regulator Gains
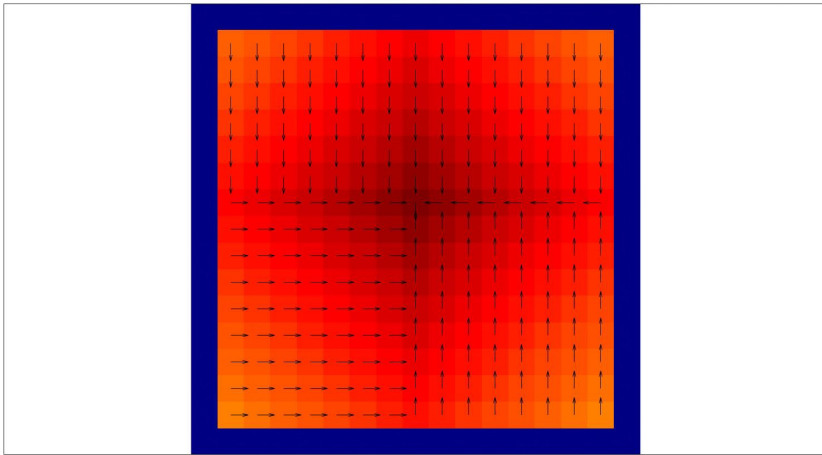
state trajectory with T = 2, Qf = 100

e) part b) and d) reach x_d because either T is large or the Q_f is large. Therefore, the control "punishes" the cost function more for not reaching x_d. Or, there are sufficient time for u to drive the system to x_d

Problem 2.

Problem 3.