CS726, Fall 2016

Homework 3 (due Wednesday 10/12/16 at start of class)

Please submit your answers in the order listed below.

1. Reproduce the step in the proof of convergence for Nesterov applied to strictly convex quadratics that is glossed over in Chapter 4 of the draft textbook but which we went over in class, namely, the claim that the roots (4.18) are distinct complex numbers for α and β in (4.17) and $\lambda_i \in (m, L)$.

2. Do Exercise 5 from Chapter 4 of the draft textbook that is posted on the course website — the one about analysis of the heavy-ball method applied to a convex quadratic.

3. Do Exercise 8 from Chapter 4 of the draft textbook that is posted on the course website — the one about lower-bounding the error in the "worst-case" quadratic.