

## 14.128 Recursive Methods: Problem Set #1

Solve the following important exercises from SLP. In some cases you only have turn in a subset of the exercises you are required to do. However, you are expected and encouraged to solve and learn the material in *all* the problems even if not graded on them at this point. Doing these exercises will help you absorb more permanently the readings of these sections.

(a) *Normed Vector spaces*: Exercises 3.2, 3.3, 3.4, 3.5, 3.6. However, no need to hand in exercises 3.2 and 3.3.

(b) *Contraction Mapping Theorem*: Exercise 3.9.

(c) *Theorem of the Maximum*: Exercises 3.11, 3.12, 3.13, and 3.14. Only hand in 3.13 [note: you may need results from 3.11 and 3.12 for 3.13 and 3.14].

(d) *Principle Of Optimality*: Exercises 4.2 and 4.3. Only hand in 4.3.

(e) *Bounded Returns*: Exercise 4.4.