

Math 477, Homework 7, due 4/18/06

Radoš Radoičić

April 7, 2006

You are required to read Section 7.3 before Tuesday class.

You are required to read Sections 6.4 and 6.5 before Thursday class.

You are required to hand in any 12 of the following problems.

At least one has to be a theoretical exercise.

The solutions should be clearly written explanations, not just numbers.

Problems from the book:

Chapter 7 – Problems: 3, 4, 7, 8, 11, 12, 15, 18, 28, 31, 33, 35, 39, 42, 43.

Chapter 7 – Theoretical Exercises: 1, 5, 10, 16, 19, 23.

Problem 1: When five points are chosen uniformly at random from the interval $[1, 2]$, what is the distribution of the natural logarithm of the smallest point?

Problem 2: Let X be a randomly oriented unit vector in 3-space. Show that the length L of the projection of X on the x -axis (i.e. the x -component of X) is uniformly distributed on $[0, 1]$ and that $E[L] = 1/2$.