

Due In Class: Wednesday, February 7, 2018

Reading: Read Sections 1.3-1.4 in the textbook.

Turn in the following problems. Exercise a.b.c refers to Exercise c at the end of Section a.b of the textbook. You are welcome (even encouraged) to work on problem sets with other students, but ultimately should write up your final solutions independently.

Problem H: Exercise 1.3.8 (lim inf and lim sup of a sequence of sets is defined on pg. 2 of the textbook)

Problem I: Exercise 1.3.13

Problem J: Exercise 1.3.14

Problem K: Exercise 1.4.17 (either modify the proof of Theorem 1.11 directly or prove that $E \cap A$ is $\mu^*|_{\mathcal{P}(E)}$ measurable whenever $A \subset X$ is μ^* measurable and then invoke Theorem 1.11).

Problem L: Let μ^* be an outer measure on X . Prove that if $A \subset X$ satisfies $\mu^*(A) = 0$, then A is μ^* measurable.