

Randomized Algorithms. Exercises for 29.09

September 23, 2009

We will discuss exercises 1.9,1.10 (in the main text) and problems 1.11-1.15 (at the end of the chapter) of the book. Please study these exercises at home, write down a solution to at least one exercise of your choice and prepare to present a solution to at least one more of the exercises in the class on Tuesday.

For those of you who do not (yet) have a copy of the book, the following is a “short version” of these exercises.

ex.1.9 Show that $ZPP = RP \cap co - RP$

ex.1.3 Show that one cannot simply repeat a PP algorithm to obtain a BPP algorithm.

pr.1.11 Show that $P \subseteq RP \subseteq NP$

pr.1.12 Show that $RP \subseteq BPP \subseteq PP$

pr.1.13 Show that $PP = co - PP$ and $BPP = co - BPP$

pr.1.14 Show that $NP \subseteq PP \subseteq PSPACE$

pr.1.15 Show that $NP \subseteq BPP$ implies $NP = RP$