

Due at the start of class Thursday, December 2, 2004.

Problem 1. Assume you have an algorithm that finds the median of n elements in $cn \lg \lg n$ comparison steps (for some constant c). Give an efficient algorithm for selection based on this. It will, of course, not be linear time. How many comparisons does it use. Get the high order term exactly. Why might it be a good algorithm despite not being linear time?

Problem 2. Do Exercise 9.3-7 on page 193 of CLRS.

Problem 3. Make an intuitive argument for why no algorithm for selection can use fewer than $2n$ comparisons in the worst case. [If you feel that $2n$ is not a good choice, but think that you can make an intelligent argument for some other reasonable value, such as $1.5n$ or $2.5n$, then do so. (An argument for $1n$ is not reasonable.)]

Problem 2. Do Exercise B.4-4 on page 1084 of CLRS.