Algorithms
Computer Science 140 & Mathematics 168
Instructor: B. Thom
Fall 2004
Homework 4a
Due on Thursday, 09/23/04 (beginning of class)

1. **[15 Points] The Oil of Olay Problem!** Exercise 9.3-9 in CLRS (Page 193). Before beginning this problem, argue why placing the pipeline at the *mean* value of y might not necessarily give an optimal answer (i.e. provide a counter example in which this strategy will break). "Showing an optimal location can be determined in linear time" requires describing an algorithm that: i) runs in linear time; and ii) is actually correct. While you don't need to show a formal proof of correctness, you should provide a clear explanation for why your approach correctly returns an optimal answer. You should also explain why your algorithm runs in $\Theta(n)$ (feel free to cite results from class as appropriate).