1. (10 pts) Develop and algorithm that given an array $A$ with $n$ elements and an integer $k \leq n$ determines the $k$ numbers in $A$ that are closest to the median of $A$. Your algorithm should not use sorting.

2. (10 pts) Cormen et al., page 200, Exercise 8.3-2

3. (20 pts) Cormen et al., page 223, Exercise 9.3-8

4. (10 pts) Cormen et al., page 370, Exercise 15.1-3