

### 9.3-5

Suppose that you have a “black-box” worst-case linear-time median subroutine. Give a simple, linear-time algorithm that solves the selection problem for an arbitrary order statistic.

### 9.3-7

Describe an  $O(n)$ -time algorithm that, given a set  $S$  of  $n$  distinct numbers and a positive integer  $k \leq n$ , determines the  $k$  numbers in  $S$  that are closest to the median of  $S$ .

### 15.1-3

Consider a modification of the rod-cutting problem in which, in addition to a price  $p_i$  for each rod, each cut incurs a fixed cost of  $c$ . The revenue associated with a solution is now the sum of the prices of the pieces minus the costs of making the cuts. Give a dynamic-programming algorithm to solve this modified problem.

### 15.1-5

The Fibonacci numbers are defined by recurrence (3.22). Give an  $O(n)$ -time dynamic-programming algorithm to compute the  $n$ th Fibonacci number. Draw the subproblem graph. How many vertices and edges are in the graph?