Problem 1. Consider the problem of not only finding the value of the maximum contiguous sum in an array, but also determining the two endpoints. Give a linear time algorithm for solving this problem. If there is more than one sum with the maximum value, find a longest such sum (i.e., a sum with the most elements of the array A). [What happens if all entries are negative?]

Problem 2. Consider the algorithms from class for finding the maximum contiguous sum. Assume that it takes time $x$ to execute the instruction

$$S ← S + A[x]$$

(a) Exactly how much time does the third algorithm (the linear algorithm) take executing additions involving elements from the array A? Show your work.

(b) Exactly how much time does the second algorithm (the quadratic algorithm) take executing additions involving elements from the array A? Show your work.

(c) **Challenge problem, will not be graded.** Exactly how much time does the first algorithm (the cubic algorithm) take executing additions involving elements from the array A? Show your work.