Peer assessment problem #3 (due Tuesday, November 10, for groups 1-5; critique (all groups) is due Thursday, November 19):

Given a sorted array of distinct integers A[1 .. n], you want to find out whether there is an index i for which A[i] = i.

a. Define the above problem as a computation problem (input and output). Be precise and concise.

b. Devise a divide-and-conquer algorithm (or a decrease-by-a-constant-factor algorithm) to solve this problem that runs in o(n) time (little oh). Use low-level pseudocode to describe your algorithm.

c. What is the worst case running time (big-Oh) of your algorithm? Use the techniques we have been using in class. Explain all of your work.