Algorithms (COT 6405): Assignment 3
Due date: September 11 (Thursday)

Problem 1 (5 points)
Write an algorithm that combines INSERTION-SORT and MERGE-SORT. It should use INSERTION-SORT for small segments of an array, and recursively merge sorted segments. A segment $A[p..r]$ is "small" if its length is no larger than some fixed value k, that is, $r - p < k$.

Problem 2 (5 points)
Write an algorithm that inputs an integer array $A[1..n]$ and an odd integer number k, and determines whether k can be represented as the sum of two elements of the array. If k is the sum of two elements of $A[1..n]$, your algorithm should return TRUE; else, it should return FALSE. Its running time should be $O(n \cdot \lg n)$.