## Problem of the Day

*Problem:* Given an array-based heap on *n* elements and a real number *x*, efficiently determine whether the *k*th smallest element in the heap is greater than or equal to *x*.

Your algorithm should be O(k) in the worst-case, independent of the size of the heap.

Hint: you do not have to find the *k*th smallest element; you need only determine its relationship to *x*.