(2 points) 1. Recall that the Burrows-Wheeler transform of a string $w[1..n]$ is obtained by appending a special character \$ and lexicographically sorting all cyclic rotation of the string $w\$$. Then, we extract the last column from the obtained table. Show how to reverse this transformation in linear time.

(2 points) 2. Consider a generalization of the RMQ problem in which, given an array $A[1..n]$ consisting of distinct integers, we want to construct a structure capable of finding the position of the minimum and the maximum in any range $A[i..j]$ without accessing the original array. Show that any such structure needs $3n - \mathcal{O}(\log n)$ bits.