1 Today’s topics

- Query complexity lower bound for element distinctness
- Query complexity lower bound for testing juntas

2 Homework

1. The lower bound shown in class for testing $k$-junta depends on $k$ but not on $\varepsilon$. Extend it so that it does increase with $\varepsilon$. You may restrict attention to non-adaptive algorithms.
   Extra credit: if you prove it for adaptive algorithms.

2. Show a query lower for testing monotonicity, for algorithms that can only compare the queried elements. In other words, if the algorithm queries positions $i$ and $j$, then it only knows whether $x_i < x_j$ or not (but does not know these values).
   Hint: For the hard distribution, swap blocks of length $2^i$ for a random $i$.
   Extra credit: if you prove it for algorithms that do see the values $x_i$. 