

**Ex 2.3.8:** About how many compares will `Quick.sort()` make when sorting an array of  $N$  items that are all equal?

**Solution:**

Probably  $(n - 1)$  compares. The problem given represents one of the worst case comparisons for Quicksort as it has to check each element over and over again in partition steps. So takes  $O(n^2)$  comparisons. Since no value smaller or larger, it keeps moving pivots to ends and doing  $n * n$  compares. A good solution to this would be to use 3-way partitioning where we have elements less the left, larger to the right, and equal in the middle.