

A Randomized Version of Quicksort

RANDOMIZED-PARTITION(A, p, r)

- 1: $i = \text{RANDOM}(p, r)$
- 2: $A[r] \leftrightarrow A[i]$
- 3: **return** PARTITION(A, p, r)

RANDOMIZED-QUICKSORT(A, p, r)

- 1: **if** $p < r$ **then**
- 2: $q = \text{RANDOMIZED-PARTITION}(A, p, r)$
- 3: RANDOMIZED-QUICKSORT($A, p, q - 1$)
- 4: RANDOMIZED-QUICKSORT($A, q + 1, r$)