# Quicksort Description

Quicksort, like merge sort, applies the divide-and-conquer paradigm introduced

in Section 2.3.1. Here is the three-step divide-and-conquer process for sorting a

typical subarray A[p..r]:

**Divide:** Partition (rearrange) the array a[p..r] into two (possibly empty) subarrays

A[p..q-1] and A[q + 1..r] such that each element of A[p..q - 1] is

less than or equal to A[q], which is, in turn, less than or equal to each element

of A[q+1 ..r]. Compute the index q as part of this partitioning procedure.

**Conquer:** Sort the two subarrays A[p..q - 1] and A[q + 1..r] by recursive calls

to quicksort.

**Combine:** Because the subarrays are already sorted, no work is needed to combine

them: the entire array A[p..r] is now sorted.