**Quick sort:**

Functions by taking an array, splitting it up into three smaller arrays:

Left, right, and middle, with the middle one consisting only of one entry. The function enters recurrence and does the same for left and right. At the lowest level of recurrence, the arrays get sorted, and sent up to the upper layers, repeating the sorting process on the sorted subarrays.

**Partition function:**

It should also be noted that the function uses a pivot-selection function to determine q. It’s really fucky tbh. The jist of it is, you start by setting a var=i=p-1, and a var=x=A[r]. You then use a for loop, where j=p..r-1. For each j, you check if A[j] <= x. If it is, increment i by one and swap A[i] with A[j]. Otherwise, swap A[i+1] with A[r].