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Ouestion 1:
a)
b)
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Question 2:

First, we need to make it that once each iteration is done the pivot is in it is right place after sorting and is not going to be moved, after that if the number of elements is odd, we need to find the n/2 element, if it is even, we need to find the n//2, n//2 + 1, elements and add them then divide them by 2.

We find the element in a position X by doing quick sort with the pivot being the middle element, and seeing if the new pivot location is X, greater than X or smaller than X. if it is X then the pivot element is the one we are looking for, if it is greater then, we quick sort the side of the array that is to the left of the pivot and if it is smaller than X then we quick sort the side of the array that is to the right of the pivot.

Ouestion 3:

He should go with bubble sort, as the implementation stops once it finds a pair that needs no swapping it breaks.

In his case the swapping will happen for one iteration, as the naughty boy only shifted once, thus the bubble sort algorithm will swap the first element with every element it finds after it until it is at the end, then once it starts the second iteration, the algorithm will find that there is no swapping needed as the elements are sorted and breaks.

Thus doing the sorting in O(n)