Q15. In a certain computer, a bubble sort of an array of 200 data elements takes the same time as a quick sort of the array. In case of an array of 40,000 data elements, how many times faster is a quick sort than a bubble sort? Here, a bubble sort and a quick sort take time proportional to n^2 and $n \times \log_2 n$ respectively, and "n" is the number of data elements.

a) 10 b) 50 c) 100 d) 200