Programming Exercise

Use any of your favourite programming language.

1. Implement the straightforward recursive algorithm for computing the product of two positive integers.

2. Implement Karatsuba's integer multiplication algorithm. Your program should invoke the language's multiplication operator only on pairs of single-digit numbers. Compare the time taken for computing the product of two numbers given at the end by both the algorithms.

3. Implement Karastuba Integer Multiplication algorithm for multiplying two n-bit numbers.

4. Implement Divide and conquer algorithm to find both the maximum and minumum number of elements.

What's the product of the following two 64-digit numbers?

x= 3141592653589793238462643383279502884197169399375105820974944592
y= 2718281828459045235360287471352662497757247093699959574966967627