

a) We should count the operation of modulating the list number by 2.

b). $T(n) = 3T(\frac{n}{3}) + C$

c). Case 1 of master theorem applies.

$$f(n) = C = O(n^{\lg 3 - \epsilon}) \text{ for some constant } \epsilon > 0.$$

$$\text{Thus, } T(n) = \Theta(n^{\lg 3}) = \Theta(n).$$

d) The running time in parallel would be constant.