

1. If the arrays length is  $< 1$  return  $T(1) = 1$
2. If the arrays length is 1 return the element  $T(1) = 1$
3. If the arrays length is 2 return the sum of the elements  $T(1) = 1$
4. else split the array into 3 parts  $T(1) = 1$
5. Call divideAndConquerSum for each part  $3T(n/3)$

$$T(n) = \begin{cases} 1 & \text{if } (n \leq 2) \\ 3T(n/3) & \text{if } (n > 2) \end{cases}$$

Substitution

$$\begin{aligned} T(n) &= 3T(n/3) \\ &= 3(3T(n/9)) \\ &= 9T(n/9) \\ &= 27T(n/27) \\ &= 3^i T(n/3^i) \end{aligned}$$

for  $i = \lg_{\text{base} 3} n$

Time Complexity:  $\Theta(n)$