

Exercise 4

$$\begin{aligned}T(n) &= 19 \sum_{i=1}^n i^2 \log_3 n \\T(n) &= 19 \log_3 n \frac{n(n+1)(2n+1)}{6} \\&= O(n^3 \log_3 n) \text{ or } O(n^3 \log n)\end{aligned}$$