

Outer loop:

The outer loop will take 1 step for $i \leq n$

It will take 2 steps for $i \leftarrow i+1$ for the evaluation and assignment

It will also take 1 step for initializing i

The rest of the steps will be from the inner loop, such that:

The outer loop will run n times due to it being from $1 \rightarrow n$ and incrementing by 1 each time.

$$1 + \sum_{i=1}^n 1 + 2 + (1 + 4(\frac{n-1}{i} + 1))$$

$$1 + \sum_{i=1}^n 3 + (1 + \frac{4n-4}{i} + 4)$$

$$1 + \sum_{i=1}^n 8 + \frac{4n-4}{i}$$

$$1 + \left(\sum_{i=1}^n 8 + \sum_{i=1}^n \frac{4n-4}{i} \right)$$

$$1 + \left(\sum_{i=1}^n 8 + \sum_{i=1}^n \frac{4n}{i} - \sum_{i=1}^n \frac{4}{i} \right)$$

$$\text{let } \Theta(\log n) = c \log n$$

$$1 + \left(8n + 4n \sum_{i=1}^n \frac{1}{i} - 4 \sum_{i=1}^n \frac{1}{i} \right)$$

$$1 + (8n + 4n(\Theta(\log n)) - 4(\Theta(\log n)))$$

$$1 + (8n + 4n(c \log n) - 4(c \log n))$$

$$1 + (8n + 4nc \log n - 4c \log n)$$

$$1 + (8n + 4n \Theta(\log n) - 4 \Theta(\log n)) \rightarrow 1 + (8n + 4 \Theta(n \log n) - 4 \Theta(\log n))$$