

$$\begin{aligned}
\mathbb{E}[X] &= \sum_{i=1}^{n-1} \sum_{j=i+1}^n \frac{2}{j-i+1} \\
&= \sum_{i=1}^{n-1} \sum_{k=1}^{n-i} \frac{2}{k+1} \\
&< \sum_{i=1}^{n-1} \sum_{k=1}^n \frac{2}{k} \\
&= \sum_{i=1}^{n-1} O(\log n) \\
&= O(n \log n)
\end{aligned}$$