

## Question 1

证明极限

$$\lim_{n \rightarrow \infty} \sum_{k=n^2}^{(n+1)^2} \frac{1}{\sqrt{k}} = 2.$$

Hint:

$$\frac{1}{\sqrt{n+1}} < 2(\sqrt{n+1} - \sqrt{n}) < \frac{1}{\sqrt{n}}.$$