

Problem of the Week-4: An Infinite Sum

Find the exact value of the limit

$$\lim_{n \rightarrow \infty} \frac{1}{3n} \sum_{k=1}^n \frac{1}{\sqrt{\frac{3k}{n}} \cdot \left(1 + \frac{3k}{n}\right)}$$

Explain and justify your answer. No calculators or computers are allowed.

(Hint: Consider the sum as a Riemann sum)

Posting Date 2/24/12. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 (e-mail or hard-copy, but hard copy submissions must include a time stamp) by 4 pm on 3/2/12.