Problem of the Week-6: An Infinite Sum

Find the exact value of the limit

$$\lim_{n\to\infty} \frac{1}{n} \sum_{i=1}^{n} \frac{in^3}{i^4 + n^4}$$

As always, explain how you obtained your answer.
(Hint: Think of Riemann sums)

Posting Date 11/6/2010. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 (e-mail or hard-copy, but hard copy submissions must include name and time of submission) by 4 pm on 11/19/2010 .