

## planetmath.org

Math for the people, by the people.

## proof of Young Inequality

Canonical name ProofOfYoungInequality

Date of creation 2013-03-22 13:30:10 Last modified on 2013-03-22 13:30:10

Owner paolini (1187) Last modified by paolini (1187)

Numerical id 4

Author paolini (1187)

Entry type Proof

Classification msc 46E30

By the concavity of the log function we have

$$\log ab = \frac{1}{p}\log a^p + \frac{1}{q}\log b^q \le \log(\frac{1}{p}a^p + \frac{1}{q}b^q).$$

By exponentiation we obtain the desired result.