

Exercises

14.42 [194] Prove Young inequality: given $a, b > 0$ and $p, q > 1$ such that $1/p + 1/q = 1$ then

$$ab \leq \frac{a^p}{p} + \frac{b^q}{q} \quad (14.42)$$

with equality if and only if $a^p = b^q$; prove this using concavity of the logarithm.

See also [1V7].

Solution 1. [195]