



Bilkent University  
Department of Mathematics

## PROBLEM OF THE MONTH

**Term:** December 2005

Prove that for all natural numbers  $b > a$

$$\frac{ab}{(a, b)} + \frac{(a+1)(b+1)}{(a+1, b+1)} \geq \frac{2ab}{\sqrt{b-a}}$$

where  $(n, m)$  denotes the greatest common divisor of natural numbers  $n$  and  $m$ .