Bilkent University
Department of Mathematics

Problem Of The Month

Term: April 2011

Show that

$$\frac{(ab+b)(2b+1)}{(ab+a)(5b+1)} + \frac{(bc+c)(2c+1)}{(bc+b)(5c+1)} + \frac{(ca+a)(2a+1)}{(ca+c)(5a+1)} \geq \frac{3}{2}$$

for all positive a, b, c satisfying

$$\frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2} \geq 3.$$