Problema săptămânii 210

a) Fie a, b, c numere reale pozitive astfel încât $abc = 1$. Demonstraţi că

$$\frac{(a-1)(c+1)}{1+bc+c} + \frac{(b-1)(a+1)}{1+ca+a} + \frac{(c-1)(b+1)}{1+ab+b} \geq 0.$$

b) Fie a, b, c, d numere reale pozitive astfel încât $abcd = 1$. Demonstraţi că

$$\frac{(a-1)(c+1)}{1+bc+c} + \frac{(b-1)(d+1)}{1+cd+d} + \frac{(c-1)(a+1)}{1+da+a} + \frac{(d-1)(b+1)}{1+ab+b} \geq 0.$$

Problem of the week no. 210

a) Let a, b, c be positive real numbers such that $abc = 1$. Prove that

$$\frac{(a-1)(c+1)}{1+bc+c} + \frac{(b-1)(a+1)}{1+ca+a} + \frac{(c-1)(b+1)}{1+ab+b} \geq 0.$$

b) Let a, b, c, and d be positive real numbers such that $abcd = 1$. Prove that

$$\frac{(a-1)(c+1)}{1+bc+c} + \frac{(b-1)(d+1)}{1+cd+d} + \frac{(c-1)(a+1)}{1+da+a} + \frac{(d-1)(b+1)}{1+ab+b} \geq 0.$$