Bilkent University
Department of Mathematics

PROBLEM OF THE MONTH

Term: October 2011

Let $x_1, x_2, \ldots, x_{2011}$ be nonnegative real numbers satisfying $x_1 + x_2 + x_3 \cdots + x_{2011} = 1$.
Show that

$$x_1x_2 + x_2x_3 + \cdots + x_{2011}x_1 + x_1x_2x_3 + x_2x_3x_4 + \cdots + x_{2011}x_1x_2$$

can not exceed $\frac{31}{108}$.