

Problema săptămânii 234

Fie n un număr natural nenul. Determinați toate n -uplurile de numere reale pozitive (x_1, x_2, \dots, x_n) cu proprietatea

$$\left(x_1 + \frac{1}{x_2}\right) \left(x_2 + \frac{1}{x_3}\right) \dots \left(x_n + \frac{1}{x_1}\right) = \left(x_1^2 + \frac{1}{x_2^2}\right) \left(x_2^2 + \frac{1}{x_3^2}\right) \dots \left(x_n^2 + \frac{1}{x_1^2}\right).$$

Problem of the week no. 234

Let n be a positive integer. Determine all n -tuples of positive real numbers that satisfy

$$\left(x_1 + \frac{1}{x_2}\right) \left(x_2 + \frac{1}{x_3}\right) \dots \left(x_n + \frac{1}{x_1}\right) = \left(x_1^2 + \frac{1}{x_2^2}\right) \left(x_2^2 + \frac{1}{x_3^2}\right) \dots \left(x_n^2 + \frac{1}{x_1^2}\right).$$