

Let  $k$  and  $m$  be positive integers and let  $a_1, a_2, \dots, a_k$  and  $b_1, b_2, \dots, b_m$  be positive real numbers. Prove that if

$$\sqrt[n]{a_1} + \sqrt[n]{a_2} + \cdots + \sqrt[n]{a_k} = \sqrt[n]{b_1} + \sqrt[n]{b_2} + \cdots + \sqrt[n]{b_m},$$

for every positive integer  $n$ , then

$$k = m \quad \text{and} \quad a_1 a_2 \cdots a_k = b_1 b_2 \cdots b_m.$$