ROMANIAN MATHEMATICAL MAGAZINE

If $a,b,c,d \in R,\ a+b+c+d=4$ then:

$$(a^4+3)(b^4+3)(c^4+3)(d^4+3) \geq 256$$

Proposed by Nguyen Hung Cuong-Vietnam

Solution by Tapas Das-India

$$(a^4+3)(b^4+3)(c^4+3)(d^4+3) =$$

$$(a^4+1+1+1)(1+b^4+1+1)(1+1+c^4+1)(1+1+1+d^4) \overset{Holder}{\geq}$$

$$\geq (a+b+c+d)^4 = 4^4 = 256$$

$$Equality\ for\ a=b=c=d=1$$