Teorem:(A-G nejednakost)
Ako su a i w uredene n-torke pozitivnih realnih brojeva,tada vrijedi $A_n(a,w) \geq G_n(a,w)$.

Neka je $a=(a_1,a_2,\ldots,a_n), w=(w_1,w_2,\ldots,w_n)$, te $W := w_1+w_2+\ldots+w_n$. Neka je $0 < a_1 \leq a_2 \leq \ldots \leq a_n$, tada je $\frac{a_1}{a_i} \leq 1, i=1,2,\ldots,n$, te takoder $\frac{a_i}{a_n} \leq 1, i=1,2,\ldots,n$.
Odavde dobivamo , $\frac{a_1}{a_n}w_1+\frac{a_2}{a_n}w_2+\ldots+\frac{a_n}{a_n}w_n \leq w_1+w_2+\ldots+w_n$ tj. $\frac{1}{a_n}(a_1w_1+a_2w_2+\ldots+a_nw_n) \leq w_1+w_2+\ldots+w_n$, $A_n(a,w)=\frac{a_1w_1+a_2w_2+\ldots+a_nw_n}{w_1+w_2+\ldots+w_n} \leq a_n = max\{a_1,a_2,\ldots,a_n\}$.
Analogno se dobije $min\{a_1,a_2,\ldots,a_n\} = a_1 \leq \frac{w_1+w_2+\ldots+w_n}{\frac{w_1}{a_1}+\frac{w_2}{a_2}+\ldots+\frac{w_n}{a_n}} = H_n(a,w)$.
Imamo , dakle $\frac{\frac{1}{a_1}w_1+\frac{1}{a_2}w_2+\ldots+\frac{1}{a_n}w_n}{w_1+w_2+\ldots+w_n}$, primjenimo A-G nejednakost na brojeve $\frac{1}{a_1}, \frac{1}{a_2}, \ldots, \frac{1}{a_n}$, dobivamo $(\frac{1}{a_1^{w_1}}*\frac{1}{a_2^{w_2}}*\ldots*\frac{1}{a_n^{w_n}})^{\frac{1}{W}} \leq \frac{\frac{w_1}{a_1}+\frac{w_2}{a_2}+\ldots+\frac{w_n}{a_n}}{w_1+w_2+\ldots+w_n}$, tj. $H_n(a,w)=\frac{w_1+w_2+\ldots+w_n}{\frac{w_1}{a_1}+\frac{w_2}{a_2}+\ldots+\frac{w_n}{a_n}} \leq (a_1^{w_1}a_2^{w_2}\ldots a_n^{w_n})^{\frac{1}{W}} = G_n(a,w)$.

Dakle, $min\{a_1,a_2,\ldots,a_n\} \leq H_n(a,w) \leq G_n(a,w) \leq A_n(a,w) \leq max\{a_1,a_2,\ldots,a_n\}$