

## INEQUALITIES RELATED TO HERON MEANS FOR POSITIVE OPERATORS

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*Abstract.* For positive operators  $A$  and  $B$  on a Hilbert space, their Heron mean is defined by  $H_{r,\mu}(A,B) = rA\sharp_{\mu}B + (1-r)A\nabla_{\mu}B$ , where  $A\sharp_{\mu}B$  and  $A\nabla_{\mu}B$  are the  $\mu$ -geometric and  $\mu$ -arithmetic means of  $A$  and  $B$ , respectively. Recently, the relationship  $H_{r,\mu}(A,B) \leq A\sharp_{\mu}B$  has been shown under some condition on  $\mu$  and  $r$ . In this paper, we improve the condition and show more sufficient conditions for the relationship.

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