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The Best Constant For An Algebraic Inequality

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Abstract: We determine the best constant λ for the inequality $\frac{1}{x}+\frac{1}{y}+\frac{1}{z}+\frac{1}{t}\geq\frac{\lambda}{1+16(\lambda-16)xyzt}$; where $x,y,z,t>0$; $x+y+z+t=1$. We also consider an analogous inequality with three variables. As a corollary we establish a refinement of Euler's inequality.