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Abstract

The two majorants in question are Gurland's Inequality [1]

$$\frac{\Gamma^2(\delta+\alpha)}{\Gamma(\delta)\,\Gamma(\delta+2\alpha)} \leqslant \frac{\delta}{\delta+\alpha^2} \qquad \alpha+\delta>0,\ \alpha\neq 0,\ 1,\ \delta>0, \qquad (1)$$

and Gautschi's Inequality [2]

$$\frac{\Gamma(n+s)}{\Gamma(n+1)} \geqslant (n+1)^{s-1} \qquad n=1,2,\ldots,\ 0\leqslant s\leqslant 1. \qquad (2)$$

By combining these inequalities it is possible to improve iteratively upon Gautschi's result (2) and also to develop upper bounds for Γ(n+²/Γ(n+2²), n = 1,2, ... , 0 < ² < l.

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