



Volume 5, Issue 2, Article 45

Some Problems and Solutions Involving Mathieu's Series and Its Generalizations

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Keywords: Mathieu's series, Integral representations, Bessel functions, Hypergeometric functions, One-sided inequalities, Fourier transforms, Riemann and Hurwitz Zeta functions, Eulerian integral, Polygamma functions, Laplace integral representation, Euler-Maclaurin summation formula, Riemann-Liouville fractional integral, Lommel function of the first kind.

Date Received: 14/10/03

Date Accepted: 01/05/04

Subject Codes: P: 26D15,33C10,33C20,33C60; S: 33E20,40A30

Editors: [Pietro Cerone](#),

Abstract: The authors investigate several recently posed problems involving the familiar Mathieu series and its various generalizations. For certain families of generalized Mathieu series, they derive a number of integral representations and investigate several one-sided inequalities which are obtainable from some of these general integral representations or from sundry other considerations. Relevant connections of the results and open problems (which are presented or considered in this paper) with those in earlier works are also indicated. Finally, a conjectured generalization of one of the Mathieu series inequalities proven here is posed as an open problem.



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