South East Asian J. of Mathematics and Mathematical Sciences
Vol. 19, No. 2 (2023), pp. 35-52

DOI: 10.56827/SEAJMMS.2023.1902.3 **ISSN (Online): 2582-0850**

ISSN (Print): 0972-7752

ON A NEW PARAMETER INVOLVING RAMANUJAN'S THETA-FUNCTIONS

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(**Received:** *Aug. 06, 2023* **Accepted:** *Aug. 22, 2023* **Published:** *Aug. 30, 2023)*

Abstract: Srinivasa Ramanujan recorded explicit evaluations of certain quotients of theta functions in his lost notebook. Motivated by the works of Ramanujan, Jinhee Yi systematically studied the analogues of explicit evaluation of quotients of theta functions by defining parameters. In this work, we define a new parameter involving theta-functions and establish some modular relations to explicitly evaluate the parameter.

Keywords and Phrases: Modular equations, theta-functions.

2020 Mathematics Subject Classification: 05A17, 11P83.

1. Introduction

Ramanujan's contributions to the theory of theta functions [4] were significant and far-reaching. He developed his own theory of theta functions, which helped him to find many new results and properties in particular cases. He also rediscovered several theorems found in Jacobi's fundamental theta functions and triple product identity, which has numerous applications in the field of theta functions.