

Supercongruences for Truncated Hypergeometric Series

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We prove several supercongruences for truncated hypergeometric series and p -adic Gamma function. Recently, A. Deines, J. Fuselier, L. Long, H. Swisher and F. Tu posed some open problems on supercongruences based on numeric observations. We prove one of those supercongruences. Our results also generalize certain supercongruences proved by them. One of our supercongruence for ${}_7F_6$ truncated hypergeometric series is similar to a supercongruence proved by L. Long and R. Ramakrishna. A supercongruence conjectured by Rodriguez-Villegas and proved by E. Mortenson using the theory of finite field hypergeometric series follows from one of our more general supercongruences.