

# Partition Identities for Ramanujan's Third Order Mock Theta Functions

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**Abstract:** We find two involutions on partitions that lead to partition identities for Ramanujan's third order mock theta functions  $\varphi(-q)$  and  $\psi(-q)$ . We also give an involution for Fine's partition identity on the mock theta function  $f(q)$ . The two classical identities of Ramanujan on third order mock theta functions are consequences of these partition identities. Our combinatorial constructions also apply to Andrews' generalizations of Ramanujan's identities.

**AMS Classification:** 05A17, 11P81

**Keywords:** mock theta function, Ramanujan's identities, partition identity, Fine's theorem, involution

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