

BECK TYPE IDENTITIES FOR n -COLOR PARTITIONS

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Abstract: Euler's identity asserts the equality of the number of partitions into distinct parts and the number of partitions into odd parts of a positive integer m . However, the numbers of parts in these two sets of partitions are not equal, and Beck conjectured that this difference between the number of parts is equal to the number of certain restricted partitions. In this paper, we extend this idea to n -color partitions and obtain Beck type identities for n -color partitions. We obtain two Beck type identities on the n -color analogue of the Euler's identity given by Agarwal. We also provide another Euler type identity for n -color partitions and obtain a Beck type identity for it. In addition to this, we prove the dual form of a Beck type identity for n -color partitions. These dual forms have been introduced by Li and Wang for ordinary partitions.

Keywords and Phrases: n -color partitions, Beck type identities, generating functions.

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