

INTEGER PARTITIONS AND THEIR GRAPHICAL REPRESENTATIONS

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An integer partition is a way of writing a given positive integer n as a sum of positive integers less than or equal to n . The study of partitions of an integer has been carried on with great interest since the time of Euler. Many mathematicians have studied and searched about integer partitions and have developed graphical representations for the integer partitions. Integer partitions can be graphically interpreted with Young diagrams or Ferrers diagrams which are both pictorial representations. The partition function $p(n)$ has been introduced to represent the number of possible partitions of a non-negative integer n . According to Handshaking Lemma, if a graph exists, then total degree should be even. Therefore, even integer partitions have been used for our work. In the graphical representation, positive integer n is the total degree of the corresponding graph. In this study, it was shown that the number of terms of the partition of an even integer n is equal to the number of vertices of the corresponding graph and the total degree of the graph is equal to n . Further, the degree of each vertex is the value of the positive integer corresponding to that vertex. Hence, partitions of every even positive integer can be represented as connected graphs or disconnected graphs.

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