

Pairwise Relative Primality of Integers and Independent Sets of Graphs

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Abstract : Let $G = (V, E)$ with $V = \{1, 2, \dots, k\}$ be a graph, the k positive integers a_1, a_2, \dots, a_k are G -wise relatively prime if $(a_i, a_j) = 1$ for $\{i, j\} \in E$. We use an inductive approach to give an asymptotic formula for the number of k -tuples of integers that are G -wise relatively prime. An exact formula is obtained for the probability that k positive integers are G -wise relatively prime. As a corollary, we also provide an exact formula for the probability that k positive integers have exactly r relatively prime pairs.

Keywords : graph, independent set, G -wise relatively prime, probability

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