

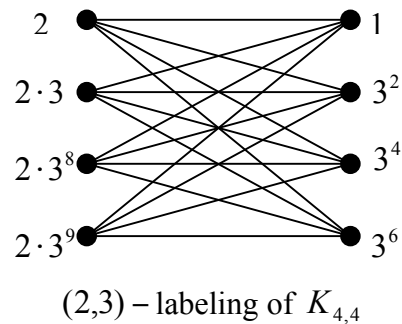
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Project 2: GEOMETRIC LABELINGS OF GRAPHS

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A *graph* G consists of a nonempty set of p vertices and a set of q edges. If x and y are adjacent vertices in G then the edge e is denoted xy . A *vertex labeling* is a function $f : V \rightarrow N$ where N is the set of positive integers. Each vertex labeling of G induces a labeling f^\times of edges given by $f^\times(e) = f(x)f(y)$. A *multiplicative labeling* of G is a one-to-one vertex labeling f such that f^\times is also one-to-one. A multiplicative labeling of G is said to be a (a, r) -*geometric labeling* if $f^\times(E) = \{a, ar, ar^2, \dots, ar^{q-1}\}$ where a and r are positive integer greater than or equal to 2.

Example:



The project is to find (a, r) geometric labeling for various classes of graphs for different values of a and r . An interest in discrete mathematics/combinatorics is sufficient for this project.