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TWO GRAPHS WITH A COMMON EDGE

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Abstract

Let $G = G_1 \cup G_2$ be the sum of two simple graphs G_1, G_2 having a common edge or $G = G_1 \cup e_1 \cup e_2 \cup G_2$ be the sum of two simple disjoint graphs G_1, G_2 connected by two edges e_1 and e_2 which form a cycle C_4 inside G. We give a method of computing the determinant $\det A(G)$ of the adjacency matrix of G by reducing the calculation of the determinant to certain subgraphs of G_1 and G_2. To show the scope and effectiveness of our method we give some examples.

Keywords: graph, adjacency matrix, determinant of graph, path, cycle.

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