Polinomial karakteristik dan nilai eigen matriks antiadjacency graf dumbbell berarah siklik = Characteristic polynomial and eigenvalue of antiadjacency matrix of directed cyclic dumbbell graph

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Abstrak

Pada skripsi ini dibahas mengenai polinomial karakteristik dan nilai eigen matriks antiadjacency graf dumbbell berarah siklik. Matriks antiadjacency dari suatu graf berarah adalah matriks yang entri-entrinya merepresentasikan apakah terdapat sebuah busur berarah yang menghubungkan dua simpul pada graf berarah tersebut atau tidak. Koefisien polinomial karakteristik dari matriks antiadjacency graf dumbbell berarah siklik didapatkan dengan menghitung determinan dari tiap-tiap subgraf terinduksi dari graf dumbbell berarah siklik dan dengan menghitung banyaknya bentuk subgraf terinduksi tertentu dari graf dumbbell berarah siklik. Nilai eigen dari matriks antiadjacency graf dumbbell berarah siklik didapatkan dengan faktorisasi polinomial. Dari hasil penelitian, diperoleh bahwa koefisien dari polinomial karakteristik dan nilai eigen dari matriks antiadjacency graf dumbbell berarah siklik dapat dinyatakan dalam fungsi yang bergantung pada jumlah simpul pada kedua subgraf lingkaran yang dikandung graf dumbbell berarah siklik.

.....This undergraduate thesis explains the characteristic polynomial and eigenvalues of the antiadjacency matrix of a directed cyclic dumbbell graph. Antiadjacency matrix of a directed graph is a matrix whose entries represent whether there exist a directed edge connecting two vertices in the directed graph or not. The coefficients of the characteristic polynomial of the antiadjacency matrix of directed cyclic dumbbell graph is obtained by evaluating the determinant of each induced subgraph of the directed cyclic dumbbell graph and by counting the number of certain forms of induced subgraph of the directed cyclic dumbbell graph. The eigenvalues of the antiadjacency matrix of directed cyclic dumbbell graph is obtained by polynomial factorization. The result obtained show that the coefficients of the characteristic polynomial and the eigenvalues of antiadjacency matrix of directed cyclic dumbbell graph can be expressed as a function that is dependent to the number of vertices of the cycle subgraphs of directed cyclic dumbbell graph.