

## Saturation Index of $\pi(D(r,s))$

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### Abstract

Adin and Roichman [1] introduced the concept of permutation graphs and Peter Keevash, Po-Shen Loh and Benny Sudakov [2] identified some permutation graphs with maximum number of edges. Ryuhei Uehara, Gabriel Valiente, discussed on Linear structure of Bipartite Permutation Graphs and the Longest Path Problem [3]. If  $i, j$  belongs to a permutation on  $p$  symbols  $\{1, 2, \dots, p\}$  and  $i$  is less than  $j$  then there is an edge between  $i$  and  $j$  in the permutation graph if  $i$  appears after  $j$  in the sequence of permutation. So the line of  $i$  crosses the line of  $j$  in the permutation. Hence there is a one to one correspondence between crossing of lines in the permutation and the edges of the corresponding permutation graph. In this paper we found the conditions for a permutation to realize a double star and comprehend the algorithm to determine the saturation index of the permutation. AMS Subject Classification (2010): 05C35, 05C69, 20B30.

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