

Combinatorial Results For Semigroups Of Order-Preserving Partial Transformations

Laradji, A; Umar, A

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King Fahd University of Petroleum & Minerals

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Summary

Let PO_n be the semigroup of all order-preserving partial transformations of a finite chain. It is shown that $|PO_n| = c(n)$ satisfies the recurrence $(2n - 1)(n + 1)c(n+1) = 4(3n(2) - 1)c(n) - (2n + 1)(n - 1)c(n-1)$ with initial conditions $c(0) = 1, c(1) = 2$. It is also shown that $|E(PO_n)| = e(n)$ satisfies the recurrence $e(n+1) = 5(e(n) - e(n-1)) + 1$ with initial conditions $e(0) = 1, e(1) = 2$. Moreover, the cardinalities of the Green's relations L, R and J have been computed. (C) 2003 Elsevier Inc. All rights reserved.

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For pre-prints please write to: alaradji@kfupm.edu.sa; aumar@kfupm.edu.sa