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## Counting of even and odd restricted permutations

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**Abstract:** Let  $p$  be a *permutation* of the set  $N_n = \{1, 2, \dots, n\}$ . We introduce techniques for counting  $N(n; k; r; I; \pi)$ , the number of even or odd restricted permutations of  $N_n$  satisfying the conditions  $-k \leq p(i) - i \leq r$  (for arbitrary natural numbers  $k$  and  $r$ ) and  $p(i) - i \notin I$  (for some set  $I$ ) and  $\pi = 0$  for even permutations and  $\pi = 1$  for odd permutations.

**Keywords:** Even and odd restricted permutations, exact enumeration, recurrences, permanents.

Math. Subj. Class.: 05A15, 05A05, 11B37, 15A15

## Preštevanje sodih in lihih omejenih permutacij

**Povzetek:** Naj bo  $p$  permutacija množice  $N_n = \{1, 2, \dots, n\}$ . Vpeljemo tehnike za določitev števila  $N(n; k; r; I; \pi)$ , števila sodih ali lihih omejenih permutacij  $N_n$ , ki zadoščajo pogoju  $k \leq p(i) - i \leq r$  (za poljubni naravni števili  $k$  in  $r$ ),  $p(i) - i \notin I$  (za neko množico  $I$ ) in  $\pi = 0$  za sode permutacije in  $\pi = 1$  za lihe permutacije.

**Ključne besede:** Sode in lihe omejene permutacije, eksaktno preštevanje, rekurzivne zveze, permanente.