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A numer of cyclic points of random A-mapping. Fix some set A, having density $\varrho > 0$ in the set N of natural members. By $V_n(A)$ denote a set of mappings of n-element set into itself, with contour sizes belonging to the set A. Such mappings were introduced by V.N. Sachkov in 1972 [1]. By $\lambda_n(A)$ denote the number of cyclic elements of the random mapping, having a uniform distribution on the set $V_n(A)$. Put for $n \in N$

$$p(n) = coeff_{s^n} \exp\left(\sum_{k\in A} \frac{s^k}{k}\right),\ B(n) = \sum_{m=1}^{n} kp(k).$$

Suppose that $B(n) = Cn^{\alpha}(1 + O(n^{-\beta}))$ as $n \to \infty$, for some positive constants C, α and $\beta < 1$ (thus $\alpha = \varrho + 1$).

Theorem 1. The next relations hold as $n \to \infty$:

$$|V_n(A)| = C(1+\varrho)n^{n-(1-\varrho)/2}(I_\varrho + O(n^{-\beta/2})),\ I_\varrho = \int_0^\infty x^\varrho \exp\left(-\frac{x^2}{2}\right)\,dx,$$

$$\mathsf{P}\left\{\lambda_n \le z\sqrt{n}\right\} = I_\varrho^{-1}\int_0^z x^\varrho \exp\left(-\frac{x^2}{2}\right)\,dx + O(n^{-\beta/2}).$$

Further in the report we give some examples in which the assumption of Theorem 1 is satisfied.

СПИСОК ЛИТЕРАТУРЫ

[1] Sachkov V.N. Mappings of a finite set with restrictions on the contour and height. - Theory probab. and its applications, 1972, v. 17, № 4, pp. 679–694.