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(These summaries may be reproduced)

JAROSLAV KRÁL, Praha: *Experimental properties of some additive pseudo-random number generators with random shuffling.* Apl. mat. 16 (1971) 395—401. (Original paper.)

The article presents an algorithm of a pseudorandom number generator based mainly on shift and addition operations which is applicable for any computer. Some statistical tests and an optimal implementation method are given.

MIROSLAV HLAVÁČEK, Praha: *Uniqueness of the solution of the boundary-initial value problem for a linear elastic Cosserat continuum.* Apl. mat. 16 (1971) 402—411. (Original paper.)

The paper presents the proofs of two theorems of uniqueness of the solution of the mixed boundary-initial value problem for elastic Cosserat continuum. The first of the theorems deals with an anisotropic material and is deduced for bounded regions. Except for certain symmetry no restrictive assumptions are imposed on the anisotropy tensors. The second theorem concerns an isotropic material and is formulated for a certain class of unbounded regions. In addition to the inequalities that are necessary and sufficient for positive definitness of the strain energy density, two other restrictive inequalities must be assumed for the material constants.

MILAN KRIŠŤÁK, Bratislava: *Some rank tests of independence and the question of their power-function.* Apl. mat. 16 (1971) 412—420. (Original paper.)

The paper deals with the problem of testing independence of a pair of random variables $X = W + \Delta Z$, $Y = W^* + \Delta Z$ by locally most powerful rank tests in a neighborhood of the point $\Delta = 0$. The corresponding tests for double-exponentially and for normally distributed random variables W and W^* are introduced. The power-functions of the U-test in a neighborhood of the points $\Delta = \varrho = 0$ for both cases are given numerically.

JIŘÍ FIALA, Praha: *Interpolation with prescribed values of derivatives instead of function values.* Apl. mat. 16 (1971) 421—430. (Original paper.)

The following interpolation problem is considered: There are given points and at some of them the functional values are prescribed. At the other points only the values of the derivatives are given. Some conditions for existence and uniqueness are formulated and the problem is reduced to the problem of solving a system of linear equations for the unknown function values. An algorithm for finding the matrix and the right hand side of this system is suggested which uses an interpolation method for finding the derivatives of the given interpolation polynomial.

ERICH BARVÍNEK, Brno: *Some properties of linear homogeneous transformation of independent variable in ordinary differential linear equations.* Apl. mat. 16 (1971) 431—438. (Original paper.)

The article studies a general linear differential equation of the 2nd order the solution $y(t)$ of which generates an orthogonal sequence $y(k_i t)$ where k_i is a suitably ordered sequence of positive roots of the solution $y(t)$. Actually, differential equations of Euler's type are dealt with.

Further a certain generalization concerning the general solution of certain iterated equation of the 4th order is given.

JIŘÍ FIALA, Praha: *Axiomatic theory of investment evaluating.* Apl. mat. 16 (1971) 439—447. (Original paper.)

An investment is defined as a real distribution with the support in a given time interval. Three simple axioms concerning the ordering given in the space of all investments are formulated, and as a main result a theorem is proved stating that the ordering is fully characterized by a real positive number (identical with the internal rate of interest) and giving the analytic representation of the utility function for this ordering. This utility functional is identical with the present value function.

VÁCLAV ALDA, Praha: *On a functional equation.* Apl. mat. 16 (1971) 448—451. (Original paper.)

A problem of strategy by consecutive choices in Banach space is considered. The best result for the increasing number of steps is given by a functional equation. The existence and unicity of solution of this equation is proved.