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(These summaries may be reproduced)

LADISLAV TRLIFAJ, Praha: *Asymptotic ratios of Bessel functions of purely imaginary argument.* Apl. mat. 19 (1974), 1—6. (Original paper.)

The Riccati equations as well as some interesting inequalities for the ratios of Bessel functions of purely imaginary argument

$$T_p(x; 1) = \frac{K_p(x)}{xK_{p+1}(x)} \quad \text{and} \quad T_p(x; -1) = \frac{I_p(x)}{xI_{p-1}(x)}$$

are derived. Solutions of the Riccati equations are given in terms of power series in p^{-1}. In particular, the asymptotic formulae for $T_p(x; \pm 1)$ with a remainder of order $O(p^{-5})$ are obtained. For p small, they represent an asymptotic expansion in x up to the order $O(x^{-5})$.

JINDŘICH NEČAS, Praha; JOACHIM NAUMANN, Berlin: *On a boundary value problem in nonlinear theory of thin elastic plates.* Apl. mat. 19 (1974), 7—16. (Original paper.)

In this paper boundary value problems for the system of nonlinear partial differential equations for displacement, governing the equilibrium state of thin elastic plates, are solved. The abstract calculus of variations is used.

JOACHIM NAUMANN, Berlin: *An existence theorem for the v. Kármán equations under the condition of free boundary.* Apl. mat. 19 (1974), 17—27. (Original paper.)

The paper concerns the v. Kármán equations governing the bending of a thin elastic plate under the condition of free boundary. Starting from the definition of a variational solution, the boundary value problem considered is replaced by an equivalent abstract operator equation to which the known theorems of the nonlinear operator theory apply. The main result consists in an existence theorem of a variational solution for the problem under consideration.

JIŘÍ ANDĚL, Praha: *On evaluation of some two-dimensional normal probabilities.* Apl. mat. 19 (1974), 28—35. (Original paper.)

Let $P_r\{.\}$ be the probability measure corresponding to a two-dimensional normal distribution with zero means, unit variances and the correlation coefficient r. A method for numerical evaluation of the probabilities $P_r\{(-a, a) \times (-a, a)\}$ and $P_r\{(-\infty, a) \times (-\infty, a)\}$ is suggested in the paper, which is particularly advantageous when r is near to 1 or -1.

VLADIMÍR FIŘT, Praha: *Surfaces of characteristic curvature.* Apl. mat. 19 (1974), 36—48. (Original paper.)

The paper presents the deduction of the equations of surfaces between the principal curvatures of which the defined relation is valid. This relation represents the characteristic curvature of the surface.

The differential equation of the surface of characteristic curvature in Cartesian coordinates is deduced in Section 1 for the case that the ratio between the principal curvatures is constant. Some properties of this surface are given in Section 2.

In Section 3 the differential equation of the meridian of a rotary surface of characteristic curvature is deduced. Particular cases of this equation are solved in Section 4.

In Section 5 the author deduces parametric equations of the meridian of the rotary surface using the first integral of differential equation; in Section 6 he demonstrates their practical application to technology.