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THE BOUNDARY VALUE PROBLEM FOR A DEGENERATE HYPERBOLIC EQUATION IN THE AREA

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We found the solution of the Goursat problem for a degenerate hyperbolic equation in the region. We prove a theorem on the unique solvability of the problem. It is shown that when the broken condition of the theorem, the homogeneous problem corresponding to the problem under study has an infinite number of linearly independent solutions.

Keywords: *degenerate hyperbolic equation, Goursat problem, Cauchy equation, Abel equation, Volterra equation of the second kind.*

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THE FAIR PRICE CALCULATION OF THE BARRIER OPTION IN THE (B,S)-MARKET MODEL WITH STOCHASTIC CHANGING OF PARAMETERS

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The (B,S)-market model with stochastic changing of parameters is presented. The parameters of the model change when the price of the stock becomes more than the given barrier. For this model the problem of the fair price calculation in the case of the barrier option is considered. This option does not equal to zero, if the price of the stock is greater or equal then given barrier. The analytic formulas are obtained for the cases of continuous and discrete times.

Keywords: *random walk, Wiener process, martingale measure, barrier option, stopping time, market, Girsanov theorem, reflection principle, Black-Scholes model, Ito formula.*

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INTERPOLATION THEOREMS FOR OPERATORS THAT ARE BOUNDED ON CONES IN WEIGHTED SPACES OF NUMERICAL SEQUENCES

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We study interpolation properties of triples of cones embedded in some Banach spaces with respect to another Banach triple. We formulate theorems on the inheritance of interpolation property of Banach triple by the triple of embedded cones. We discuss applications of these results to the theory of bases in nuclear spaces of numerical sequences.

Keywords: *Banach space, cone, interpolation, the real interpolation method.*

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MODELING OF SOCIAL PARTNERSHIP IN THE BANKING SYSTEM

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In this article we are going to analyze the problem of social partnership in the banking system. Without a doubt this problem is highly relevant. The system has to be flexible enough to provide comfortable relationship between people and banks. We will consider banks, the central bank and people, who use banking services, as the participants of this social partnership. The result of the partnership will be the income growth of the banks and the central bank.

Keywords: *hierarchy, two-level control system, Stackelberg, equilibrium.*

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FORMATION OF aDDITIONAL cAVITATIONAL zONES AT vERTICAL iMPACT OF THE cIRCULAR cYLINDER WHICH IS cOMPLETELY sHIPPED IN lIQUID

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The dynamic mixed task about vertical impact and the subsequent movement with continuous acceleration of the circular cylinder which is completely shipped in ideal and incompressible liquid is investigated. Is shown that under certain conditions, along with the zone of a separation caused by impact the additional cavitational zones depending on the law of the movement of the cylinder after impact and physical parameters of a task are formed. Influence of acceleration of the cylinder on an arrangement of zones of a separation and their connectivity is studied.

Keywords: *ideal incompressible liquid, impact with a separation, small times, the asymptotic analysis, a cavity, Froude's number, cavitation number, additional cavitational zones.*

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STRIP CUTS IN A TRANSTROPIC ELASTIC SOLID

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The problems on interaction of two identical parallel strip cuts in a transversely isotropic elastic space (5 independent elastic parameters) are investigated in three-dimensional formulation when the planes of isotropy are perpendicular to the cuts plane. Due to anisotropy two cases are considered in which the cuts are situated along one of the two Cartesian axes. The problems are reduced

to one-dimensional integral equations and the regular asymptotic method is used to solve these equations by introducing a dimensionless geometric parameter. The asymptotic formulas for strength intensity factors have been analyzed.

***Keywords**: transversely isotropic elastic solid, cut.*

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THE BOUNDEDNESS OF THE MAXIMAL OPERATOR IN GRAND LEBESGUE SPACES ON R^n

© 2016 г. S.M. Umarkhadzhiev

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The conditions on the way to expand the classical Lebesgue space to grand Lebesgue spaces on the set of infinite measure, under which the maximum operator remains limited in the resulting grand space.

***Keywords:** grand Lebesgue space, maximal operator, sublinear operator, interpolation theorem, bounded operator.*

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