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VI. Paper (accepted):

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VII. Paper (submeitted):

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30, 1984) Linear and nonlinear boundary value problems for differential equations with reflection of the argument are considered. Key words and phrases.Â Differential equations with involutions can be transformed by differentiation to higher order ordinary differential equations data initial or boundary conditions. been studied in numerous papers. and, hence, admit of point Initial value problems for such equations have However, boundary value problems even for differential equations with reflection of the argument have not been considered yet.Â lt;_ I. The homogeneous boundary value problem 0, U together with u(a) u(b) O, has the Greenâ€™s function G(x, t), defined by [(b-x)(t-a), a <_ t < x < b (b-t)(x-a), a <_ x 1 b-a C(x, t) <_ t and. Homogeneous Linear Equations with Constant Coefï¬cients 133 4.4 Undetermined Coefï¬cientsâ€”Superposition Approach 140 4.5 Undetermined Coefï¬cientsâ€”Annihilator Approach 150 4.6 Variation of Parameters 157 4.7 Cauchy-Euler Equation 162 4.8 Solving Systems of Linear DEs by Elimination 169 4.9 Nonlinear Differential Equations 174 CHAPTER 4 IN REVIEW 178 5 MODELING WITH HIGHER-ORDER DIFFERENTIAL EQUATIONS 181.Â These problems were class tested and submitted by in- structors of differential equations courses and reï¬,ect how they supplement their classroom presentations with additional projects. â€¢ Exercises Many exercise sets have been updated by the addition of new prob- lems to better test and challenge the students. short time perturbations, in the last years the interest in the differential equations with impulses remarkably increased. Going back to the papers of Mil'man and Myshkis [4, 5] the investigations of this subject are now extended to different directions concerning applications in physics, biology, electronics, automatic control etc.Â The present paper is devoted to a boundary value problem for a linear singularly perturbed system (containing "slow" variables and stable and unstable "fast" variables) with impulses.Â Linear differential equations with impulses. 109. In this work we research a singularly perturbed boundary value problem for a quasilinear ordinary differential equation of the second order with Neumann and Dirichlet boundary conditions. We have considered new class of problems, in which nonlinearities undergo discontinuities, which leads to the appearance of sharp transition layers in the vicinity of the discontinuity points. The existence is proved and an asymptotic expansion of solutions with an internal transition layer is constructed.