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MSC: 33, 45

TO SOLVE THE PROBLEM OF NONLINEAR BENDING OF THE CONSOLE

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Annotation. An improved technique for solving the classical nonlinear problem of bending the console from the action of a vertical force is presented. New design dependencies are proposed, which allow directly (without selection) to establish the analytical relationship of the module of elliptic functions and integrals with a force similarity coefficient determined for the initially defined characteristics of the console and the active load, comparing the results of the calculation of which with the exact values of the module gave a fairly close coincidence (< 1%). The above makes a direct solution of the problem under consideration possible with the definition of the main parameters of the bent console, such as the coordinates of the shape of the console, bending angles, etc. The obtained results can be used, in particular, in designing protective structures against dangerous prone geophysical processes, etc.

Keywords: console, cantilever bend, nonlinear problem, elliptical Jacobi functions, elliptical integrals of 1 and 2 kind, force similarity coefficient

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