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ON THE PROBLEM OF SEARCH FOR SMOOTH STIFF CONTOUR IN CASE OF PLATE BENDING

The article studies the problem of search for smooth stiff contour inside the square, when the plate is bent by principal normal bending moments of the same value, fixed at the square sides. The searched contour is free of external loading and it must be determined on condition that the tangential normal moment at it gets the constant V, o value and the cutting force, normal and twisting moments equate with zero. The methods of conformal reflections and linear conjugation boundary problem theory are applied to study the task. On their basis it is proved that in this case under examination, one of the complex potentials is a linear function and the other complex potential and the equation of searched contour is formulated effectively (in analytical terms). A formula is worked out for the parameter V, o and the limits of its variation and the type of contour (to some extent of approximation) for various values of the mentioned parameter are determined.