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The plane mixed problem for an elastic semi-strip under different load types at its short edge

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Highlights

- The mixed problem for the fixed semi-strip is investigated in this article for the three cases of the applied mechanical load. The solution of the boundary problem is reduced to the solution of the singular integral equation (SIE) with regard to the unknown displacement's derivative. Three cases of SIE are investigated: when the mechanical load is applied on the center of the semi-strip's edge, when the mechanical load is distributed near the left lateral side and when the mechanical load is distributed on the whole semi-strip's edge. In the first case SIE is solved by the using of the orthogonal polynomial's method. In the second and third cases the characteristic equations to SIE are constructed, and the SIE are solved with the help of the generalized method. The stress state of the semi-strip is investigated for the three cases.

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