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Thermal Stresses in a Hexagonal Region With an Elliptic Hole

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Abstract: Considering importance of stress concentration around holes and notches of arbitrary shape in a given elastic medium for modern engineering, a two dimensional model for a thermoelastic problem in an hexagon region with an elliptic hole is established. The expressions for the temperature distribution and thermal stresses which have their importance in nuclear engineering are obtained for the model. The five elementary function's method in plane thermoelasticity of multiply connected regions is used to obtain the solutions for temperature distribution and thermal stresses. Numerical calculations are computed assuming a central elliptic hole in the hexagonal region having thermally insulated outer boundary under uniform heat generation. The obtained results are depicted graphically.

Keywords: *Temperature; thermal stress; Lame's constants.*

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