

Analysis of radially tapered circular plate sectors by finite difference

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Abstract: A finite difference method is proposed to analyse a radially tapered circular plate sector subjected to an arbitrary transverse loading. The plate is considered to be simply supported at the two radial edges and arbitrarily supported at the two circumferential edges. A levy-type semi-inverse solution is used in conjunction with finite difference method to solve the governing differential equation of a curved, tapered plate. The method requires nodal equilibrium equations only along the central radial line, thus greatly simplifying the complexity of the problem. The proposed method can be easily programmed to readily apply a plate problem.