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摘要: We derive varepsilon-uniform error estimates for two first-order upwind discretizations of a model inhomogeneous, second-order, singularly perturbed boundary value problem on a non-uniform grid. Here, varepsilon is the small parameter multiplying the highest derivative term. The grid is suggested by the equidistribution of a positive monitor function which is a linear combination of a constant floor and a power of the second derivative of the solution. Our analysis shows how the floor should be chosen to ensure varepsilon-uniform convergence and indicates the convergence behaviour for such grids.

关键词: singular perturbation; adaptive grid; rate of convergence; error estimate

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