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On One Implementation of the Numerov Method for the One-Dimensional Stationary Schrödinger equation

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We present accurate numerical results for the one-dimensional stationary Schrödinger equation in the case of three quantum problems: quantum harmonic oscillator, radial Shrödinger equation for a Hydrogen atom, and a particle penetration through the potential barrier. All of them were solved by the Numerov method with high accuracy and we plot their wave functions using the results of the numerical calculations. Furthermore, we offer accurate numerical methods for solving boundary value problems, boundary condition problems, matrix elimination.

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