Numerical solution of integral equations of the second kind

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Integral equations are a fundamental tool in mathematical analysis, bridging differential equations and functional analysis. They naturally arise in physics, engineering, and applied sciences, modeling phenomena such as heat conduction, fluid dynamics, and electromagnetic fields. Unlike differential equations, integral equations account for global properties of a function, making them powerful in solving boundary value problems and inverse problems. Their applications extend to potential theory, quantum mechanics, and even economics, demonstrating their broad utility in both theoretical and applied contexts.

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