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Dirichlet problem

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Suppose Ω is a domain of \mathbb{R}^n and $\partial\Omega$ is the boundary of Ω . Further suppose f is a function $f: \partial\Omega \rightarrow \mathbb{C}$. Then the *Dirichlet problem* is to find a function $\phi: \Omega \cup \partial\Omega \rightarrow \mathbb{C}$ such that

$$\begin{aligned}\phi &= f, & \text{on } \partial\Omega, \\ \nabla^2\phi &= 0, & \text{in } \Omega.\end{aligned}$$