$$\begin{cases} -\operatorname{div} \underline{\underline{\sigma}} = \underline{f} & \text{in } \Omega \\ \underline{\underline{\sigma}}\,\underline{n} = \underline{g} & \text{on } \partial\Omega \end{cases}$$

$$\int_\Omega \underline{\underline{\sigma}} : \nabla \underline{\varphi} - \underbrace{\int_{\partial\Omega} \underline{\underline{\sigma}}\,\underline{n} \cdot \underline{\varphi}}_{= \int_{\partial\Omega} \underline{g} \cdot \underline{\varphi}} = \int_\Omega \underline{f} \cdot \underline{\varphi}$$