

$$\iiint_{\mathcal{G}} [u \nabla^{\mathbf{r}} v + (\nabla u, \nabla v)] d^{\mathbf{r}} V = \oint_S u \frac{\partial v}{\partial n} d^{\mathbf{r}} A \quad (1)$$

$$\iiint_{\mathcal{G}} [u \nabla^{\mathbf{r}} v - v \nabla^{\mathbf{r}} u] d^{\mathbf{r}} V = \oint_S \left(u \frac{\partial v}{\partial n} - v \frac{\partial u}{\partial n} \right) d^{\mathbf{r}} A \quad (2)$$