

$$\iint_{R^3}\left|\frac{\partial}{\partial t}(f*g)(x,y,z,t)-(f*g)(x,y,z,t)\frac{\partial h}{\partial t}(\mathbf{x},t)\right|^pdV=\int_{\partial R}p|\nabla f||g|^{p-1}\nabla f\cdot\mathbf{n}ds$$