

20191/22020

15             $\tau(x,y,z)$              $-\Delta u = \delta$              $u$

$$u = \frac{1}{4\pi} \iint_{\partial\Omega} \frac{1}{r} \frac{\partial u}{\partial n} dS - \frac{1}{4\pi} \iint_{\partial\Omega} u \frac{\partial}{\partial n} \left( \frac{1}{r} \right) dS - \frac{1}{4\pi} \iiint_{\Omega} \frac{\Delta u}{r} dx$$

$$\begin{cases} -\Delta u = f \\ u|_{\partial\Omega} = g \end{cases}$$

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$$\begin{cases} \left(\frac{\partial^2}{\partial t^2} - a^2 \Delta\right)u = f \\ u|_{t=0} = \varphi(x,y) \quad u_t|_{t=0} = \psi(x,y) \\ u|_{\partial\Omega} = \mu(x,y,t) \end{cases}$$

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$$\begin{cases} \frac{\partial^2 u}{\partial t^2} - a^2 \frac{\partial^2 u}{\partial t^2} = 0 \\ t=0: \quad u = \varphi(x) \quad \frac{\partial u}{\partial t} = \psi(x) \\ u(0,t) = 0, u(l,t) = 0 \end{cases}$$

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$$\begin{cases} \frac{\partial u}{\partial t} - a^2 \frac{\partial^2 u}{\partial t^2} = f(x,t) \\ u(x,0) = \varphi(x) \quad (-\infty < x < +\infty) \end{cases}$$

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1     $\widehat{f^*g} = \widehat{f} \cdot \widehat{g}$

$$2 \quad \widehat{f \cdot g} = (2\pi)^{-n} \widehat{f}^* \widehat{g}$$

$$15 \qquad C^\infty(\mathbb{R}^n) \qquad D'$$

$$10 \qquad S(\mathbb{R}^n) \subset L^p(\mathbb{R}^n) \subset S'(\mathbb{R}^n) \quad (1 < p < +\infty)$$

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