1

1,2,3,8,9

11后面的方框公式

13b 14 15

唯一性定理

16 17 18 19

分离变量

20-23

\begin{equation}

\theta=\theta\_{s}(x)=\theta\_{1}+\left(\theta\_{2}-\theta\_{1}\right) \frac{x}{L}

\end{equation}

\begin{equation}

\frac{d \theta\_{s}}{d x}=\frac{\theta\_{2}-\theta\_{1}}{L}

\end{equation}

\begin{equation}

J=-k \frac{d \theta\_{s}}{d x}

\end{equation}

\begin{equation}

\rho c \frac{\partial \theta}{\partial t}=\frac{\partial}{\partial x}\left(k \frac{\partial \theta}{\partial x}\right)

\end{equation}

\begin{equation}

\frac{\partial \theta}{\partial t}=\kappa \frac{\partial^{2} \theta}{\partial x^{2}}

\end{equation}

\begin{equation}

\frac{\partial \theta}{\partial t}=\kappa \frac{\partial^{3} \theta}{\partial x^{2}}, 0<x<L, 0<t<\infty

\end{equation}

\begin{equation}

\mid \theta(x, 0)=g(x),(g \text { 给定 }), 0>x<L

\end{equation}

\begin{equation}

\theta(0, t)=\theta\_{1}, \theta(L, t)=\theta\_{2}, t>0

\end{equation}

\begin{equation}

\rho c \frac{\partial \theta}{\partial t}=\mathbf{\nabla} \cdot(k \nabla \theta)

\end{equation}

（13b）

\begin{equation}

\frac{\partial}{\partial t} \iiint\_{R} c \rho \theta d \tau=\oiint\_{\partial R} k \frac{\partial \theta}{\partial n} d \sigma=\oiint\_{\partial\_{R}} k \mathbf{n} \cdot \nabla \theta d \sigma

\end{equation}

\begin{equation}

\iiint\_{R}\left[c \rho \frac{\partial \theta}{\partial t}-\nabla \cdot(k \nabla \theta)\right] d \tau=0

\end{equation}

\begin{equation}

\begin{array}{l}

\theta=0, \text { 在 } s \text { 上; } \\

\theta=0, \text { 当 } t=0 \text { 时, }

\end{array}

\end{equation}

\begin{equation}

\frac{1}{2} \iiint\_{R} \rho c \frac{\partial\left(\theta^{2}\right)}{\partial t} d \tau=-\varepsilon+\oiint\_{\partial R} k \theta \frac{\partial \theta}{\partial n} d \sigma

\end{equation}

期中 \begin{equation}

\varepsilon=\iint\_{R} \mid k(\nabla \theta)^{2} d \tau

\end{equation}

\begin{equation}

\left(\frac{1}{2} \iiint\_{R} \rho c \theta^{2} d \tau\right)\_{t\_{1}}-0=-\int\_{0}^{t\_{1}} \varepsilon d t

\end{equation}

\begin{equation}

\varepsilon=0, \text { 在所有时刻. }

\end{equation}

\begin{equation}

v(x, t)=\theta(x, t)-\theta\_{s}(x)

\end{equation}

\begin{equation}

\frac{\partial v}{\partial t}=\kappa \frac{\partial^{3} v}{\partial x^{2}}

\end{equation}

\begin{equation}

0<x<L, v(x, 0)=f(x) ; f(x)=g(x)-\theta\_{s}(x)

\end{equation}

\begin{equation}

v(0, t)=v(L, t)=0, \text { 对于所有 } t>0

\end{equation}