

$$(1) \quad \begin{array}{l} ? \\ t\bar{q}(x,t)+x\bar{f}(\bar{q}(x,t))=0 \end{array}$$

$$(2) \quad \begin{array}{l} \bar{q}(x,t)\in \\ R^m_{-\infty} \\ \int_{-\infty}^{\infty}q_j(x,t)dx \\ q_j(x,t) \\ t \\ f_j(q(x,t)) \\ ?? \\ qt+\mathbf{A}qx=0 \end{array}$$

$$(3) \quad \begin{array}{l} \mathbf{A} \\ qt+uqx=0 \end{array}$$

$$(4) \quad \begin{array}{l} q(x,t)=q(x-ut,0) \end{array}$$

$$(5) \quad \begin{array}{l} ?? \\ ?? \\ \mathbf{J}(q) \\ (i,j) \\ f_i g_j \\ \bar{q}t+\mathbf{J}(\bar{q})\bar{q}x=0 \end{array}$$

$$(6) \quad \begin{array}{l} \mathbf{T} \\ \rho t+ \\ \div(\rho \vec{u})= \\ \mathbf{0} \Delta \\ \mathbf{t}(\rho \vec{u})+ \\ \div(\rho \vec{u} \vec{u}+ \\ P)= \\ \mathbf{0} \Delta, \quad \mathbf{0} \\ Et+ \\ \div((E+ \\ P)\vec{u})= \\ \mathbf{0} \Delta \\ E_P= \\ \frac{1}{\gamma-1}+ \\ \frac{1}{2} \rho u^2 \\ P \\ ?? \end{array}$$

$$(7) \quad \begin{array}{l} t\bar{q}(\vec{x},t)+\div\mathbf{f}(\bar{q}(\vec{x},t))=0 \end{array}$$

$$(8) \quad \begin{array}{l} \bar{q}(\vec{x},t)=(\rho\rho\vec{u}E)=(q_1q_2q_3) \end{array}$$

$$(9) \quad \begin{array}{l} f(q,q_x). \\ \mathbf{f}(\bar{q})=(\rho\vec{u}\rho\vec{u}\vec{u}+P\vec{u}(E+P))=(q_2\frac{q_2^2}{q_1}+P(\bar{q})\frac{q_2}{q_1}(q_3+P(\bar{q}))) \end{array}$$

$$(10) \quad \begin{array}{l} P(\bar{q}) \end{array}$$

$$(11) \quad \begin{array}{l} t\mathbf{q}(\vec{x},t)+\div\mathbf{f}(\mathbf{q}(\vec{x},t))=S(\mathbf{q}(\vec{x},t)) \end{array}$$

$$(12) \quad \begin{array}{l} \Delta x = \\ \Delta y = \\ h \\ \Delta t = \\ k \\ (x_i,y_i) = \\ \{x_i\} \\ \{t_n\} \\ ih,y_0+ \\ jh) \\ t_n = \\ t_0+ \\ nk \\ Q^n_{ij} \simeq q(x_i,y_j,t_n) \end{array}$$

$$(13) \quad \begin{array}{l} \mathbf{H} \\ qt+uqx=0 \end{array}$$

$$(14) \quad \begin{array}{l} \frac{Q_i^{n+1}-Q_i^n}{k}+u\left(\frac{Q_i^{n+1}-Q_i^n}{k}\right)=0 \end{array}$$

$$(15) \quad \begin{array}{l} q^0_i \\ \text{ijn} \end{array}$$

$$(16) \quad \begin{array}{l} Q_i^{n+1}=Q_i^n-\frac{k}{h}\,u\,(Q_i^n-Q_{i-1}^n) \\ \text{Navier-} \\ \text{Stokes} \end{array}$$

$$(17) \quad \begin{array}{l} Q_i^{n+1}=Q_i^n-\frac{k}{h}\,(Q_i^n-Q_{i-1}^n) \end{array}$$