$$\phi_t = \nabla \cdot (D \nabla \phi)$$

$$\nabla \phi = \begin{bmatrix} \frac{\partial \phi}{\partial x} \\ \frac{\partial \phi}{\partial y} \\ \frac{\partial \phi}{\partial z} \end{bmatrix} \qquad D = \begin{bmatrix} D_{11} & D_{21} & D_{31} \\ D_{12} & D_{22} & D_{32} \\ D_{13} & D_{23} & D_{33} \end{bmatrix}$$

$$\underset{3\times 3}{D} \underset{3\times 1}{\nabla \phi} = \begin{bmatrix} D_{11}\frac{\partial \phi}{\partial x} + D_{21}\frac{\partial \phi}{\partial y} + D_{31}\frac{\partial \phi}{\partial z} \\ D_{12}\frac{\partial \phi}{\partial x} + D_{22}\frac{\partial \phi}{\partial y} + D_{32}\frac{\partial \phi}{\partial z} \\ D_{13}\frac{\partial \phi}{\partial x} + D_{23}\frac{\partial \phi}{\partial y} + D_{33}\frac{\partial \phi}{\partial z} \end{bmatrix}$$

$$\nabla = \begin{bmatrix} \frac{\partial \phi}{\partial x} \\ \frac{\partial \phi}{\partial y} \\ \frac{\partial \phi}{\partial z} \end{bmatrix} \cdot D \nabla \phi = \frac{\partial}{\partial x}\left[D_{11}\frac{\partial \phi}{\partial x} + D_{21}\frac{\partial \phi}{\partial y} + D_{31}\frac{\partial \phi}{\partial z}\right]$$

$$+ \frac{\partial}{\partial y}\left[D_{12}\frac{\partial \phi}{\partial x} + D_{22}\frac{\partial \phi}{\partial y} + D_{32}\frac{\partial \phi}{\partial z}\right]$$

$$+ \frac{\partial}{\partial z}\left[D_{13}\frac{\partial \phi}{\partial x} + D_{23}\frac{\partial \phi}{\partial y} + D_{33}\frac{\partial \phi}{\partial z}\right]$$