1. Linear Systems of Two Second-Order Partial Differential Equations

1. $\dfrac{\partial u}{\partial t} = a\dfrac{\partial^2 u}{\partial x^2} + b_1 u + c_1 w, \quad \dfrac{\partial w}{\partial t} = a\dfrac{\partial^2 w}{\partial x^2} + b_2 u + c_2 w.$

2. $\dfrac{\partial u}{\partial t} = a\dfrac{\partial^2 u}{\partial x^2} + f_1(t)u + g_1(t)w, \quad \dfrac{\partial w}{\partial t} = a\dfrac{\partial^2 w}{\partial x^2} + f_2(t)u + g_2(t)w.$

3. $\dfrac{\partial^2 u}{\partial t^2} = k\dfrac{\partial^2 u}{\partial x^2} + a_1 u + b_1 w, \quad \dfrac{\partial^2 w}{\partial t^2} = k\dfrac{\partial^2 w}{\partial x^2} + a_2 u + b_2 w.$

4. $\dfrac{\partial^2 u}{\partial x^2} + \dfrac{\partial^2 u}{\partial y^2} = a_1 u + b_1 w, \quad \dfrac{\partial^2 w}{\partial x^2} + \dfrac{\partial^2 w}{\partial y^2} = a_2 u + b_2 w.$