

Exact Solutions > Linear Partial Differential Equations > Second-Order Parabolic Partial Differential Equations

1. Linear Parabolic Equations

- 1.1. Heat Equation $\frac{\partial w}{\partial t} = a \frac{\partial^2 w}{\partial x^2}$
- 1.2. Nonhomogeneous Heat Equation $\frac{\partial w}{\partial t} = a \frac{\partial^2 w}{\partial x^2} + \Phi(x, t)$
- 1.3. Convective Heat Equation with a Source $\frac{\partial w}{\partial t}=a\frac{\partial^2 w}{\partial x^2}+b\frac{\partial w}{\partial x}+cw+\Phi(x,t)$
- 1.4. Heat Equation with Axial Symmetry $\frac{\partial w}{\partial t} = a \left(\frac{\partial^2 w}{\partial r^2} + \frac{1}{r} \frac{\partial w}{\partial r} \right)$
- 1.5. Heat Equation of the Form $\frac{\partial w}{\partial t}=a\Big(\frac{\partial^2 w}{\partial r^2}+\frac{1}{r}\frac{\partial w}{\partial r}\Big)+\Phi(r,t)$
- 1.6. Heat Equation with Central Symmetry $\frac{\partial w}{\partial t} = a \left(\frac{\partial^2 w}{\partial r^2} + \frac{2}{r} \frac{\partial w}{\partial r} \right)$
- 1.7. Heat Equation of the Form $\frac{\partial w}{\partial t}=a\bigg(\frac{\partial^2 w}{\partial r^2}+\frac{2}{r}\frac{\partial w}{\partial r}\bigg)+\Phi(r,t)$
- 1.8. Schrodinger Equation $i\hbar \frac{\partial w}{\partial t} = -\frac{\hbar^2}{2m} \frac{\partial^2 w}{\partial x^2} + U(x)w$

The EqWorld website presents extensive information on solutions to various classes of ordinary differential equations, partial differential equations, integral equations, functional equations, and other mathematical equations.

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