



Linear Heat Equations

- **Heat Equation** $\frac{\partial w}{\partial t} = a \frac{\partial^2 w}{\partial x^2}$
- **Nonhomogeneous Heat Equation** $\frac{\partial w}{\partial t} = a \frac{\partial^2 w}{\partial x^2} + \Phi(x, t)$
- **Convective Heat Equation with a Source** $\frac{\partial w}{\partial t} = a \frac{\partial^2 w}{\partial x^2} + b \frac{\partial w}{\partial x} + cw + \Phi(x, t)$
- **Heat Equation with Axial Symmetry** $\frac{\partial w}{\partial t} = a \left(\frac{\partial^2 w}{\partial r^2} + \frac{1}{r} \frac{\partial w}{\partial r} \right)$
- **Heat Equation of the Form** $\frac{\partial w}{\partial t} = a \left(\frac{\partial^2 w}{\partial r^2} + \frac{1}{r} \frac{\partial w}{\partial r} \right) + \Phi(r, t)$
- **Heat Equation with Central Symmetry** $\frac{\partial w}{\partial t} = a \left(\frac{\partial^2 w}{\partial r^2} + \frac{2}{r} \frac{\partial w}{\partial r} \right)$
- **Heat Equation of the Form** $\frac{\partial w}{\partial t} = a \left(\frac{\partial^2 w}{\partial r^2} + \frac{2}{r} \frac{\partial w}{\partial r} \right) + \Phi(r, t)$

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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<http://eqworld.ipmnet.ru/en/solutions/lpde/heat-toc.pdf>