

Diffegyenletek

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1. Green

$$xy'' + (2x - 1)y' + (x - 1)y = x^2 \cdot e^{-x}$$

$$z_1 = e^{-x}$$

$$y(a) = y(b) = 0$$

$$(x + 1)y'' + xy' - y = 2(x + 1)$$

$$z_1 = x$$

$$y(0) = y(1) = 0$$

$$[(1 - x^2)y']' - (1 - x^2)^{-1}y = (1 + x^2)^{1/2}$$

$$y'(0) = y(1) = 0$$

2. Fourier

$$\frac{\partial^2 u}{\partial x^2} - \frac{\partial^2 u}{\partial t^2} = 0$$

$$u(0, t) = 0$$

$$u(l, t) = \cos(\Omega t)$$

$$\frac{\partial u}{\partial t} - \frac{\partial^2 u}{\partial x^2} = 0$$

$$u(x, 0) = G(x)$$

$$u(0, t) = u(l, t) = 0$$

$$\frac{\partial u}{\partial t} = \frac{\kappa}{c\rho} \frac{\partial^2 u}{\partial x^2}$$

$$u(x, 0) = f(x)$$

$$\frac{\partial^2 u}{\partial \rho^2} + \frac{1}{\rho} \frac{\partial u}{\partial \rho} + \frac{\partial^2 u}{\partial z^2} = 0$$

$$u(1, z) = 0$$

$$u(\rho, h) = 0$$

$$u(\rho, 0) = f(\rho)$$