

1. (15b) Nalezněte řešení úlohy

$$\begin{aligned}\frac{\partial u}{\partial t} - \frac{\partial^2 u}{\partial x^2} &= 0 && \text{na } (0, \infty) \times (0, 1) \\ u(0, x) &= x - x^3 && \text{na } (0, 1) \\ u(t, 0) = u(t, 1) &= 0 && \text{na } (0, \infty).\end{aligned}$$

2. (20b) Nalezněte řešení úlohy

$$\begin{aligned}\frac{\partial^2 u}{\partial t^2} - \frac{\partial^2 u}{\partial x^2} &= 0 && \text{na } (0, \infty) \times (0, \pi) \\ u(0, x) &= \sin^4 x && \text{na } (0, \pi) \\ \frac{\partial u}{\partial t}(0, x) &= x \cos x && \text{na } (0, \pi) \\ \frac{\partial u}{\partial x}(t, 0) &= \frac{\partial u}{\partial x}(t, \pi) = 0 && \text{na } (0, \infty).\end{aligned}$$