Q.1: Find steady-state temperature in the circular cylinder of radius 2 and height 4 by solving

\[ \frac{\partial^2 u}{\partial r^2} + \frac{1}{r} \frac{\partial u}{\partial r} + \frac{\partial^2 u}{\partial z^2} = 0 \]

with \( u(2, z) = 0 \), \( u(r, 0) = 5 \), and \( u(r, 4) = 0 \).
Q.2: Find steady-state temperature in the sphere of radius 2

\[ \frac{\partial^2 u}{\partial r^2} + \frac{2}{r} \frac{\partial u}{\partial r} + \frac{1}{r^2} \frac{\partial^2 u}{\partial \theta^2} + \frac{\cot \theta}{r^2} \frac{\partial u}{\partial \theta} = 0, \quad 0 < r < 2, \quad 0 < \theta < \pi, \quad \text{and} \quad u(2, \theta) = 1 + \cos \theta. \]