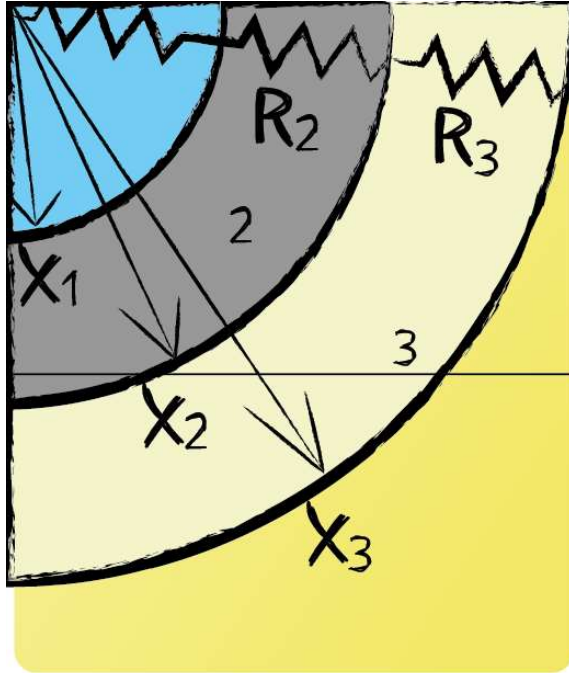


Lecture 8 - Question 3



Consider the case as in the figure for a multi-layer pipe wall, where $r_1 = 10 \text{ mm}$, $r_2 = 20 \text{ mm}$, $\lambda_2 = 0.2 \text{ W/mK}$, $r_3 = 40 \text{ mm}$, $\lambda_3 = 0.1 \text{ W/mK}$ and $L = 1 \text{ m}$. Which statement is true?



$$R_2 = \frac{1}{\lambda_2} \cdot \frac{1}{2\pi L} \cdot \ln\left(\frac{r_2}{r_1}\right) = 0.5516 \text{ } ^\circ\text{C/W}$$

$$R_3 = \frac{1}{\lambda_3} \cdot \frac{1}{2\pi L} \cdot \ln\left(\frac{r_3}{r_2}\right) = 1.1032 \text{ } ^\circ\text{C/W}$$

Thus $R_2 < R_3$