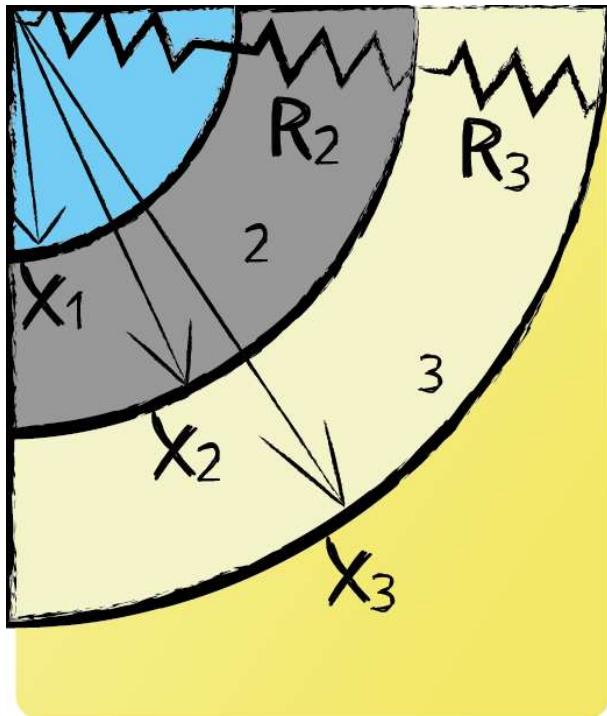


## Lecture 8 - Question 3



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  $R_2 < R_3$