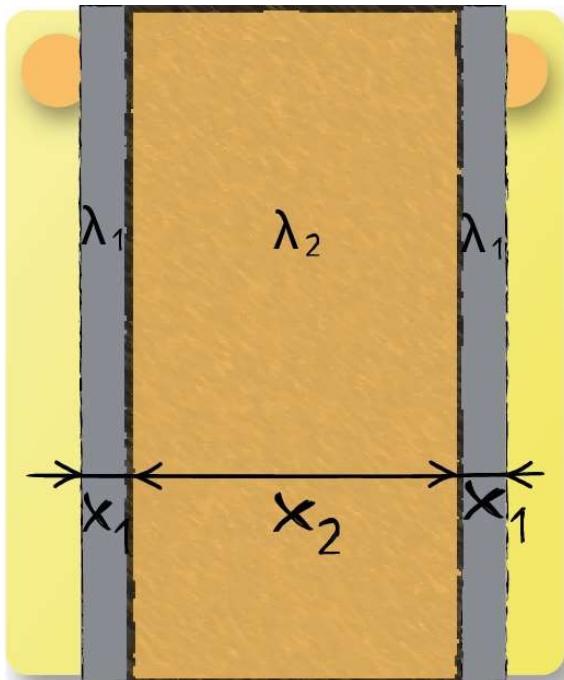


Lecture 7 - Question 2



The wall of a refrigerator is constructed of fiberglass insulation sandwiched between two layers sheet metal. The refrigerated space and the kitchen are kept at constant temperature. Determine the thermal resistance of the fiberglass insulation. Take $A_s = 1 \text{ m}^2$, $\lambda_2 = 0.02 \text{ W/mK}$, $x_2 = 10 \text{ mm}$, $\lambda_1 = 15 \text{ W/mK}$, $x_1 = 10 \text{ mm}$.

Conductive thermal resistance:



$$R_{fiberglass} = \frac{x_2}{\lambda_2 \cdot A_s}$$

Filling in the numerical values:

$$R_{fiberglass} = \frac{0.01}{0.02 \cdot 1} = 0.5 \text{ } ^\circ\text{C/W}$$