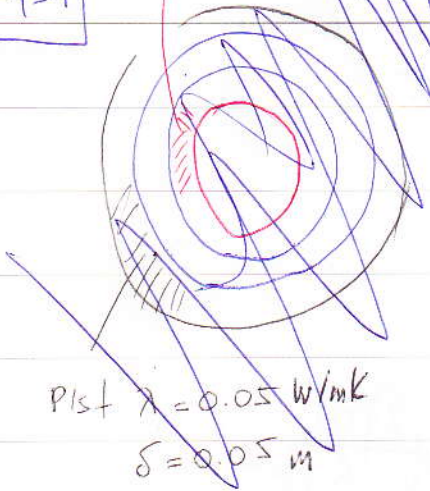


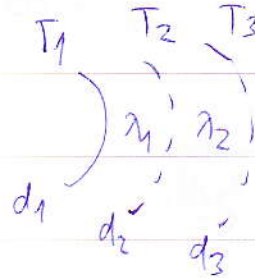
9-1

PE $\lambda = 0.08 \text{ W/mK}$
 $\delta = 0.100 \text{ m}$



Pls $\lambda = 0.05 \text{ W/mK}$
 $\delta = 0.05 \text{ m}$

d_1
 d_2
 d_3
 d_4



$$T_1 = -30^\circ\text{C} \quad d_1 = 0.1 \text{ m}$$

$$T_2 = ? \quad d_2 = 0.1 + 2 \cdot 0.1 = 0.3 \text{ m}$$

$$T_3 = 25^\circ\text{C} \quad d_3 = 0.3 + 2 \cdot 0.05 = 0.5 \text{ m}$$

$$\lambda_1 = 0.08 \text{ W/mK}$$

$$\lambda_2 = 0.05 \text{ W/mK}$$

$$L = 100 \text{ m} \quad \dot{Q} = ?$$

$$\dot{Q} = 2\pi L \frac{T_1 - T_3}{\frac{1}{0.08} \ln \frac{0.3}{0.1} + \frac{1}{0.05} \ln \frac{0.5}{0.3}} = -1773 \text{ W}$$

$$\frac{-1773}{2\pi L} = \frac{T_1 - T_2}{\frac{1}{0.08} \ln \frac{0.3}{0.1}}$$

$$T_2 = \frac{1}{0.08} \ln \frac{0.3}{0.1} \cdot \left(\frac{1773}{2\pi L} \right) + T_1 = \underline{\underline{81.75^\circ\text{C}}}$$