



b) $\dot{Q} = \frac{1}{R_{cond} + R_{conv}} \Delta T = 149 \text{ W} \Rightarrow A$

$R_{cond} = \frac{l}{kA}$ $l = 4 \text{ cm}$
 $k = 0.04 \text{ W m}^{-1} \text{ K}^{-1}$
 $R_{conv} = \frac{1}{hA}$ $h = 2 \text{ W m}^{-2} \text{ K}^{-1}$
 $A = 1 \text{ m}^2$
 $\Delta T = 250 - 27$

c) $\dot{Q} = \frac{1}{R_{conv}} \Delta T' \Leftrightarrow T_s = \dot{Q} R_{conv} + T_c = 0.5 \dot{Q} + 27 \Rightarrow B$

$\Delta T' = T_s - T_c$ $T_c = 27^\circ \text{C}$
 $R_{conv} = \frac{1}{2}$

d) $\frac{P_{inc}}{P_{rad}} = F \Rightarrow F_{f,f} = 1$ $F_{f|f} = \frac{A_f}{A_f} F_{f,f} = 0.05 \Rightarrow B$

e) $\lambda_{\text{max}} = \frac{B}{T} = 5.54 \text{ mm} \Rightarrow A$