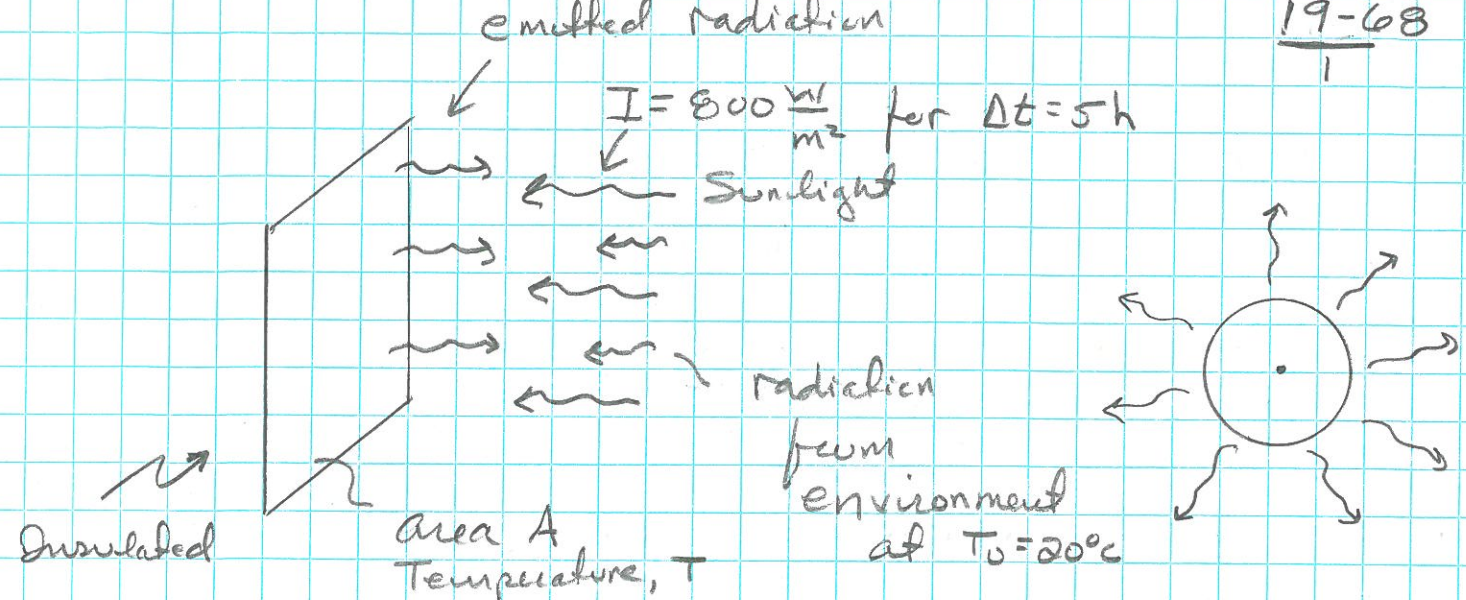

Absorbed Solar Power, $P_s = IA$

Emitted Power, $P_e = e\sigma A T^4$

Absorbed Power from environment, $P_o = e\sigma A T_o^4$

At equilibrium: Emitted Power = Absorbed Power

So: $P_e = P_s + P_o$

$$e\sigma A T^4 = IA + e\sigma A T_o^4$$

$$T^4 = \frac{I}{e\sigma} + T_o^4$$

$$\therefore T = \left\{ \frac{I}{e\sigma} + T_o^4 \right\} \quad \text{where} \quad e = 1.0$$

$$= 382.8\,K = \underline{109.8^\circ C}$$