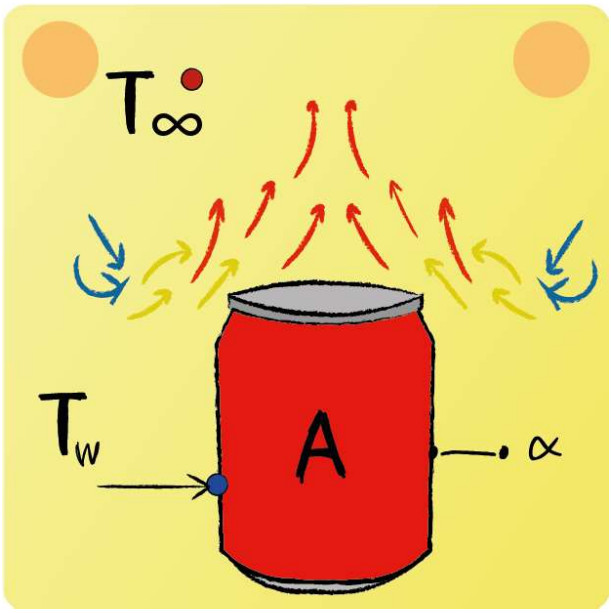
Lecture 1 - Question 6



A group of soda cans have a temperature of $T_w = 0$ ^{o}C and a total surface area of A = 0.9 m^2. These cans are placed in to a room which has a temperature $T_\infty = 20$ ^{o}C. The heat transfer coefficient is $\alpha = 20$ W/m^{2}K. Assume steady-state heat transfer. Determine the heat entering the cans.

$$\dot{Q}_{in} = \alpha\ A\ (T_W - T_\infty)\ =\ 20 \cdot 0.9 \cdot -20\ =\ -36\ W$$

So 36 W is entering the cans, since the equation above described the heat loss.