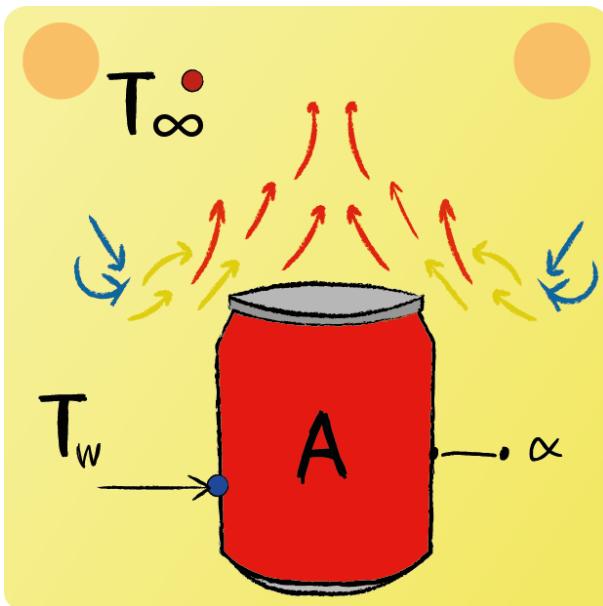


## Lecture 1 - Question 6



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

$$\dot{Q}_{in} = \alpha A (T_w - T_\infty) = 20 \cdot 0.9 \cdot -20 = -360 \text{ W}$$

 So 360 W is entering the cans, since the equation above described the heat loss.