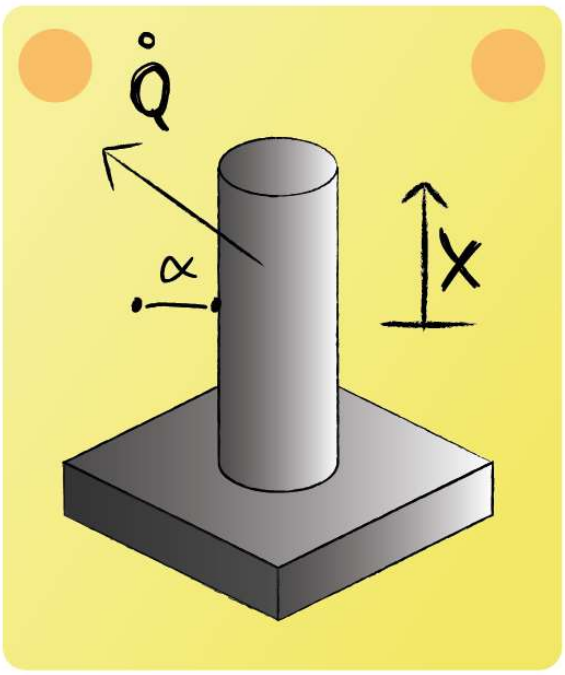
Lecture 9 - Question 1



Consider a fin exchanging heat with a fluid due to convective heat transfer. Note that the tip has a lower temperature than the base. This heat transfer is characterized by a constant heat transfer coefficient α. Which of the following statements is true?

The rate of heat transfer at the base is higher than the rate of heat transfer at the tip. Heat transfer is described by:

$$\dot{Q} = \alpha \cdot A_s \cdot (T_\mathrm{w} - T_\mathrm{a})$$

T_w will be higher at the base than at the tip, because of this the rate of heat transfer will be higher at the base.