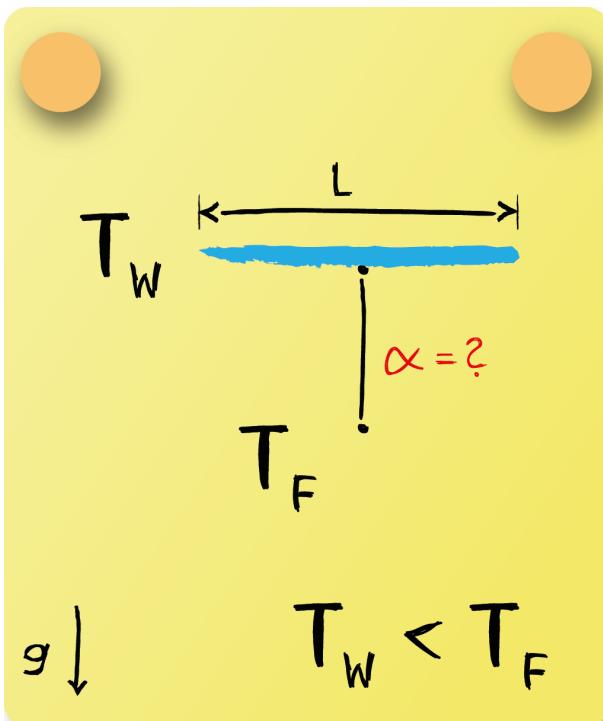




# Heat Transfer Correlation: Task 18



The image describes a horizontal plate with length  $L$  and a constant temperature  $T_W$  standing in a non-moving ideal gas of temperature  $T_F$ . The temperature of the lower surface  $T_W$  is smaller than the fluid temperature  $T_F$ .

1 HTC.22a:  $\overline{Nu_L} = 0.54(Gr_L Pr)^{1/4}$  for  $2 \cdot 10^4 < Gr_L Pr < 8 \cdot 10^6$  with  $\beta = \frac{1}{T_\infty} = \frac{1}{T_F}$  (ideal gas)

2 Results:  $Gr_L = 4.66 \cdot 10^6$   $\overline{Nu_L} = 12.69$   $\overline{\alpha} = 9.90$

3 **Important:** Use temperatures in Kelvin!