AE331 HEAT TRANSFER
Online Quiz, No 3
November 18, 2020
(open notes and books)

Rules for the quiz

1. Your camera and microphone should be open during the quiz (you can reduce your speaker's volume if the voice is bothering you but you should not reduce the volume of your microphone)
2. You should not communicate with anybody during the quiz.
3. You should sit in front of your computer where the assistants can clearly see you even if you finish the quiz earlier.
4. You should be alone during the quiz.
5. Please sign the following statements and upload this page with your solution papers.

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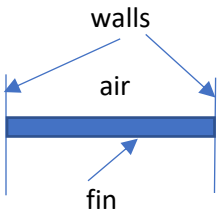
I affirm that all the work done on this quiz is my own; have obeyed the rules indicated above and I have not given or received any help during this quiz. I understand that any indication of violation of this word of honor may lead to a zero grade on this quiz and to a disciplinary action.

Name: ID number: Date/Signature:

Question
Duration: 15 min for solution + 10 min for uploading

Assume that a thin metal fin is placed between two walls. The length of the fin (the distance between walls) is 0.ab [m]. The fin has a rectangular cross-section. The width and thickness of the fin 0.0a [m] and 0.0b [m], respectively. The temperatures of the walls are 10ab [K] and 5ab [K]. The fin and walls are exposed to air at 2ab [K]. The thermal conductivity coefficient of the fin is k=ab [W/mK]. The convective heat transfer coefficient around the fin surface is ab0 [W/m^2K].



a) Calculate the temperature distribution inside the fin
b) Calculate the heat transfer rate from the fin surface to air.

Where "a" and "b" are the symbols that represent the last two digits of your id number. For example, if your id number is 7134251 = 71342ab, then a=5, b=1. (If any of these symbols has a zero value and cause difficulties in the solution, you can replace this value with the third digit of your id number)