

Fin Temperature CDF Tool

Calculation of Fin Temperature for Adiabatic Tip and Infinite Fins

The following CDF tool calculates the normalized fin temperature ($\theta(x)/\theta_{\text{base}}$) for two cases:

- Case 1: Adiabatic fin tip
- Case 2: Infinitely long fin

In both cases, the cross sectional area of the fin is assumed to be constant.

We use the conventional definition of the fin eigenvalue m :

$$m = \sqrt{\frac{hP}{kA_c}}$$

where:

- h is the convective heat transfer coefficient
- P is the fin perimeter
- k is the fin's thermal conductivity
- A_c is the fin's cross-sectional area

Graphical CDF Tool

The CDF tool follows. Note that the distance from the fin base is normalized by the fin length (i.e., x in the formulas below represents the dimensional distance from the base divided by the fin length L).

