## 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\_{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\$\$:

 $= \sqrt{hP}{kA_c}$ 

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).

