

Fin tip temp may be found from

$$\frac{\theta}{\theta_0} = \frac{\cosh m(L-x)}{\cosh mL}$$

$$\text{at } x = L \quad \cosh(\theta) = 1$$

$$\therefore \theta = \frac{\theta_0}{\cosh mL}$$

$$\theta = \frac{120 - 15}{\cosh(11.25 \times 0.050)} = 90.3 \text{ K}$$

$$\therefore T_{\text{tip}} - 15 = 90.3$$

$$\therefore T_{\text{tip}} = 105.3 \text{ } ^\circ\text{C}$$