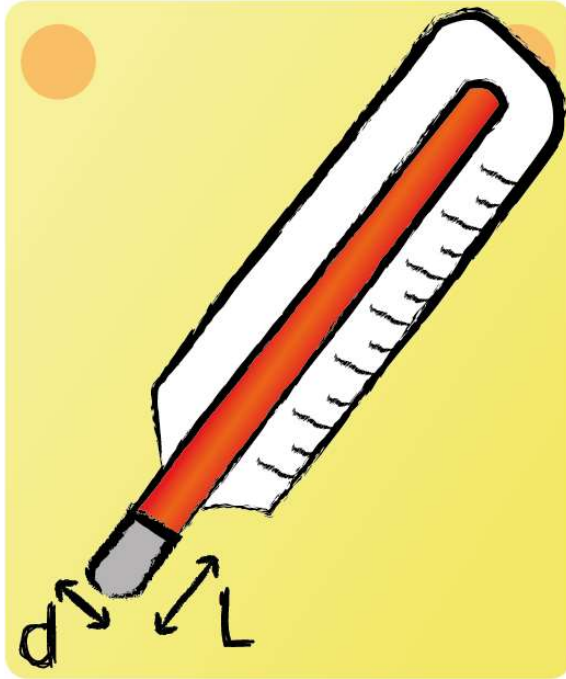


## Lecture 15 - Question 1



Consider the following fever thermometer. The tip can be assumed to be a thin cylinder. Determine the characteristic length  $L_c$ . Take  $L = 40$  mm and  $d = 5$  mm. Select the proper range.



$$L_c = \frac{V}{A} = \frac{\frac{\pi}{4} d^2 L}{2 \cdot \frac{\pi}{4} d^2 + \pi d L}$$

Thin cylinder approximation :  $L_c \approx \frac{\frac{\pi}{4} d^2 L}{\pi d L} = \frac{1}{4} d = 1.25 \text{ mm}$