

79. The increase in the surface area of the brass cube (which has six faces), which had side length is L at 20° , is

$$\begin{aligned}\Delta A &= 6(L + \Delta L)^2 - 6L^2 \approx 12L\Delta L = 12\alpha_b L^2 \Delta T \\ &= 12 (19 \times 10^{-6}/^\circ\text{C}) (30 \text{ cm})^2 (75^\circ\text{C} - 20^\circ\text{C}) \\ &= 11 \text{ cm}^2 .\end{aligned}$$