

**Let:  $L = 10$  (cm)**

$$\alpha = 2 \times 10^{-5}$$

$$t_1 = 30 \text{ }^\circ\text{C}$$

$$t_2 = 100 \text{ }^\circ\text{C}$$

At heating the plate linearly extends equally in two dimensions:

$$\Delta S = \Delta L^2$$

Side of plate will increase to:

$$\Delta L = L \times \alpha(t_2 - t_1)$$

$$\Delta L = 10 \times 2 \times 10^{-5} \times (100 - 30) = 0.014 \text{ (cm)}$$

Area of one face of the plate will increase to:

$$\Delta S = 0.014^2 = 0.000196 \text{ (cm}^2\text{)}$$