**Answer on Question #66753-Physics-Molecular Physics-Thermodynamics**

A sonometer wire having cross sectional area 0.85×1/1000000 m2 is stretched between two rigid supports 1.2 my apart .A tension of 20 N is applied at its free end .if the temperature is reduced by 12°C, Calculate the field tension in the wire .Take coefficient of linear expansion & isothermal young's modulus to be 1.5× 1/100000 1/K & 2 ×100000000000 N/my, respectively.

**Solution**

$$\Delta F = -A\gamma\alpha\Delta T$$

$$\Delta F = (0.85 \cdot 10^{-6})(2 \cdot 10^{11})(1.5 \cdot 10^{-5})(12) =$$

$$F' = F + \Delta F = 20 + 30.6 = 50.6 \, N.$$

**Answer: $50.6 \, N$.**