

$$\frac{-8}{120} = -k(90-20)$$

$$\frac{8}{120} = 70k \quad \text{--- (1)}$$

Case 2: $T_1' = 71^\circ\text{C} \longrightarrow T_2' = 69^\circ\text{C} \Rightarrow \frac{dT'}{dt'} = -2^\circ\text{C}$

$$T' = \frac{T_1' + T_2'}{2} = 70^\circ\text{C}$$

$$\frac{dT'}{dt'} = -k(T' - T_0)$$

$$\frac{-2}{dt'} = -k(70-20) \Rightarrow \frac{2}{dt'} = 50k \quad \text{--- (2)}$$

$$\textcircled{1}/\textcircled{2} \quad \frac{8/120}{2/dt'} = \frac{70k}{50k} \Rightarrow \frac{\cancel{4}^1 \cancel{8} \times dt'}{\cancel{2} \times \cancel{120}_{30}} = \frac{7}{5}$$

$$dt' = \frac{7 \times 30}{5} = 42 \text{ sec.}$$

DISTRIBUTION OF ENERGY IN BLACKBODY SPECTRUM:

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