by (3) $\beta = \frac{\Delta A}{A_0 \cdot \Delta T}$ — (4)

if $\Delta T = 1°C$ or $1K \Rightarrow$ by eq (4) $\beta = \frac{\Delta A}{A_0}$ → Fractional change in area

by (3) $A - A_0 = \beta A_0 \Delta T$

$A = A_0 + \beta A_0 \Delta T \Rightarrow$ $\boxed{A = A_0(1 + \beta \cdot \Delta T)}$ — (5)

3. Volume Expansion : V_0 at $T_0 \Rightarrow V$ at T where $T > T_0$

$\Delta V \propto V_0 \cdot \Delta T \Rightarrow$ $\boxed{\Delta V = \gamma V_0 \Delta T}$ — (6) $\boxed{\gamma = \alpha_V}$

↳ coefficient of volume expansion

by eq (6) $\gamma = \frac{\Delta V}{V_0 \cdot \Delta T}$ — (7)

if $\Delta T = 1°C$ or $1K$ by eq (7) $\gamma = \frac{\Delta V}{V_0}$ → fractional change in volume

"Coefficient of volume expansion is equal to the fractional change in the volume of the body when temp. is changed by $1°C$ or $1K$".