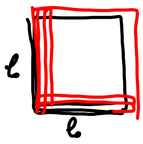


$S_0 = l^2$

$S_f = [l_0(1+\lambda\Delta T)]^2$

$l_0^2(1+\lambda^2\Delta T^2+2\lambda\Delta T)$

$\lambda = n\,b^{-6}$

$= S_0(1+2\lambda\Delta T)$

① $l_f = l_0\cdot(1+\lambda\Delta T)$ (dal primo)

$\Delta l = l_0\lambda\Delta T$

$l_f = l_0 + l_0\lambda\Delta T$

② $S_f = S_0(1+2\lambda\Delta T)$

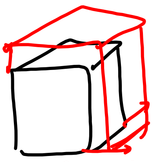
$S_{20} = 300\ m^2$ $t = 20$ Bronzo $2\cdot10^{-5}$

$S = 180$?

$S = -10$?

$S_{80} = S_{20}\left[1+2\cdot2\cdot10^{-5}(80-20)\right] \Rightarrow$

$S_{-10} = S_{20}\left[1+2\cdot2\cdot10^{-5}(-10-20)\right] =$



$V_f = [l_0(1+\lambda\Delta T)]^3$

$= l_0^3(1+\lambda^3\Delta T^3+3\lambda T+3\lambda^2\Delta T^2)$

$l_f = l_0(1+\lambda\Delta T)$

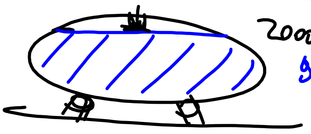
Solidi → $V_f = V_0(1+3\lambda\Delta T)$

Liquidi → $V_f = V_0(1+k\Delta T)$

Fe $\lambda = 12\cdot10^{-6}$ $3\lambda = 36\cdot10^{-6} = 3{,}6\cdot10^{-5}$

H_2O $k = 2.1\cdot10^{-4}$

Liquidi → dilatano 50/80 Volte + dei Solidi



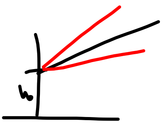
$d = \frac{m}{V}$

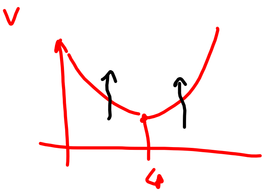
$V = V_0(1+3\lambda T)$ Solidi

$= V_0(1+k\Delta T)$ Liq

$t > \quad V > \quad d <$ MOTI CONVETTIVI

ARIA calda ↑ ARIA F. ↓





$V = V_0(1+kT)$