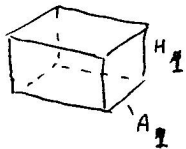
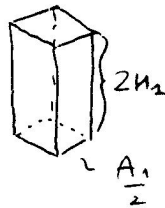


10.14. Le volume de mercure ne change pas!



$$V = H_1 \cdot A_1$$

$$R_1 = \int \frac{H_1}{A_1}$$

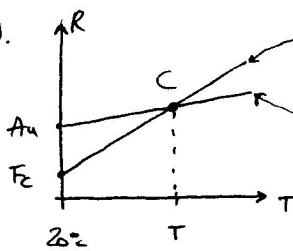


$$V = 2H_1 \cdot \frac{A_1}{2} = H_1 \cdot A_1$$

$$R_2 = \int \frac{2H_1}{\frac{A_1}{2}} = 4 \cdot \int \frac{H_1}{A_1} = 4R_1$$

$$\Rightarrow \frac{R_1}{R_2} = \frac{1}{4}$$

10.15.



$$R_{Au} = R_{20}^{Au} \cdot (1 + \alpha_{Au} \cdot (T - 20)) \quad (1)$$

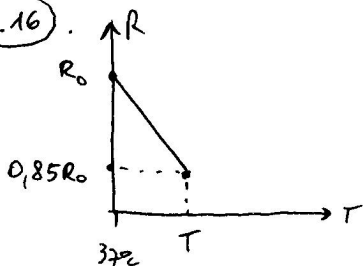
$$R_{Fe} = R_{20}^{Fe} \cdot (1 + \alpha_{Fe} \cdot (T - 20)) \quad (2)$$

$$(1) = (2) : R_{20}^{Au} + R_{20}^{Au} \cdot \alpha_{Au} (T - 20) = R_{20}^{Fe} + R_{20}^{Fe} \cdot \alpha_{Fe} (T - 20)$$

$$(T - 20) \cdot [R_{20}^{Au} \cdot \alpha_{Au} - R_{20}^{Fe} \cdot \alpha_{Fe}] = R_{20}^{Fe} - R_{20}^{Au}$$

$$\Rightarrow T - 20 = \frac{R_{20}^{Fe} - R_{20}^{Au}}{R_{20}^{Au} \cdot \alpha_{Au} - R_{20}^{Fe} \cdot \alpha_{Fe}} = \frac{5,9 - 6,7}{6,7 \cdot 0,0034 - 5,9 \cdot 0,005} \hat{=} 119,0^\circ \Rightarrow T \hat{=} \underline{\underline{139^\circ}}$$

10.16.



$$0,85R_0 = R_0 \cdot (1 + \alpha(T - 37))$$

$$0,85 = 1 - 0,06 \cdot (T - 37)$$

$$\Rightarrow T - 37 = \frac{-0,15}{-0,06} = 2,5^\circ \Rightarrow T = \underline{\underline{39,5^\circ}}$$