

Dichte berechnen – 3 Beispiele

Stahl-Quader



Geg: $l = 2,0 \text{ cm}$; $b = 1,0 \text{ cm}$; $h = 4,5 \text{ cm}$; $m = 70 \text{ g}$

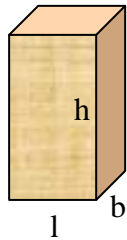
Ges: ρ

$$V = 2,0 \text{ cm} \cdot 1,0 \text{ cm} \cdot 3,5 \text{ cm}$$

$$V = 9,0 \text{ cm}^3$$

$$\rho = \frac{m}{V} = \frac{70 \text{ g}}{9,0 \text{ cm}^3}; \quad \rho = 7,8 \frac{\text{g}}{\text{cm}^3} (= 7,8 \frac{\text{kg}}{\text{dm}^3})$$

Holz-Quader



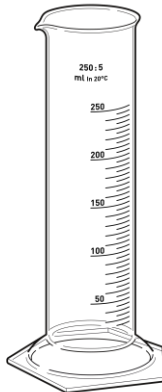
Geg: (Volumen wie Stahlquader); $m = 6 \text{ g}$

Ges: ρ

$$V = 9,0 \text{ cm}^3$$

$$\rho = \frac{m}{V} = \frac{6 \text{ g}}{9,0 \text{ cm}^3}; \quad \rho = 0,7 \frac{\text{g}}{\text{cm}^3} (= 0,7 \frac{\text{kg}}{\text{dm}^3})$$

Knete



Geg: $V_1 = 60 \text{ ml}$; $V_2 = 73 \text{ ml}$; $m = 22 \text{ g}$

Ges: ρ

Verdrängungsmethode:

$$V = 73 \text{ ml} - 60 \text{ ml} = 13 \text{ ml} \triangleq 13 \text{ cm}^3$$

$$\rho = \frac{m}{V} = \frac{22 \text{ g}}{13,0 \text{ cm}^3}; \quad \rho = 1,7 \frac{\text{g}}{\text{cm}^3} (= 1,7 \frac{\text{kg}}{\text{dm}^3})$$