

$$V = 10^7 \text{ m}^3$$

$$\Delta T = 5 \text{ }^\circ\text{C}$$

$$C = 4200 \text{ J.kg}^{-1}$$

$$\rho(\text{H}_2\text{O}) = 10^3 \text{ kg.m}^{-3}$$

$$\rho = \frac{m}{V} \rightarrow m = \rho V$$

$$Q = cm\Delta T$$

$$\boxed{Q = c\rho V\Delta T}$$

$$\text{Mosaz: } m_1 = 70 \text{ g} = 0,07 \text{ kg}$$

$$c_1 = 386 \text{ J.kg}^{-1}.\text{K}^{-1}$$

$$T_1 = ? \text{ K}$$

$$\text{Voda: } m_2 = 400 \text{ g} = 0,4 \text{ kg}$$

$$c_2 = 4200 \text{ J.kg}^{-1}.\text{K}^{-1}$$

$$T_2 = 293 \text{ K}$$

$$T = 311 \text{ K}$$

$$T_2 < T < T_1$$

$$Q_{\text{prijatá}} = Q_{\text{odovzdaná}}$$

$$Q_2 = Q_1$$

$$c_1 m_1 (T_1 - T) = c_2 m_2 (T - T_2)$$

$$\boxed{T_1 = \frac{c_2 m_2 (T - T_2)}{c_1 m_1} + T}$$

$$\text{Olej: } m_1 = 35 \text{ kg}$$

$$c_1 = 1680 \text{ J.kg}^{-1}.\text{K}^{-1}$$

$$T_1 = 303 \text{ K}$$

$$\text{Oceľ: } m_2 = ? \text{ kg}$$

$$c_2 = 460 \text{ J.kg}^{-1}.\text{K}^{-1}$$

$$T_2 = 1073 \text{ K}$$

$$T = 331 \text{ K}$$

$$T_1 < T < T_2$$

$$Q_{\text{prijatá}} = Q_{\text{odovzdaná}}$$

$$Q_1 = Q_2$$

$$c_1 m_1 (T - T_1) = c_2 m_2 (T_2 - T)$$

$$\boxed{m_2 = \frac{c_1 m_1 (T - T_1)}{c_2 (T_2 - T)}}$$

$$\text{Platina: } m_1 = 0,1 \text{ kg}$$

$$c_1 = 134 \text{ J.kg}^{-1}.\text{K}^{-1}$$

$$T_1 = ? \text{ K}$$

$$\text{Mosaz: } m_2 = 0,2 \text{ kg}$$

$$c_2 = 386 \text{ J.kg}^{-1}.\text{K}^{-1}$$

$$T_2 = 283 \text{ K}$$

$$\text{Voda: } m_3 = 1 \text{ kg}$$

$$c_3 = 4200 \text{ J.kg}^{-1}.\text{K}^{-1}$$

$$T_3 = 283 \text{ K}$$

$$T = 287 \text{ K}$$

$$T_2 = T_3 < T < T_1$$

$$Q_{\text{prijatá}} = Q_{\text{odovzdaná}}$$

$$Q_2 + Q_3 = Q_1$$

$$c_2 m_2 (T - T_2) + c_3 m_3 (T - T_3) = c_1 m_1 (T_1 - T)$$

$$\boxed{T_1 = \frac{c_2 m_2 (T - T_2) + c_3 m_3 (T - T_3)}{c_1 m_1} + T}$$