

Str. 139 / úloha 761

1.

$$m_r = 800 \text{ g} = 0,8 \text{ kg}$$

$$t_{\text{hor}} = 10 \text{ }^\circ\text{C}$$

$$m_p = 20 \text{ g} = 0,02 \text{ kg}$$

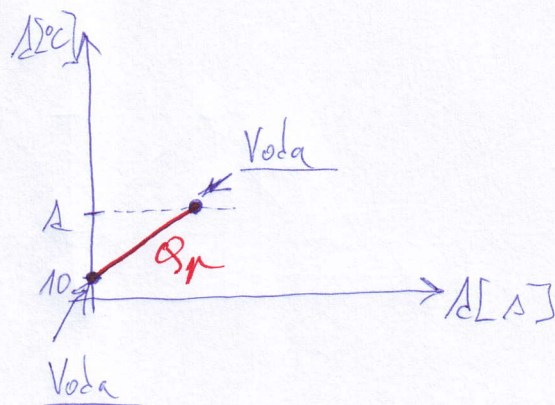
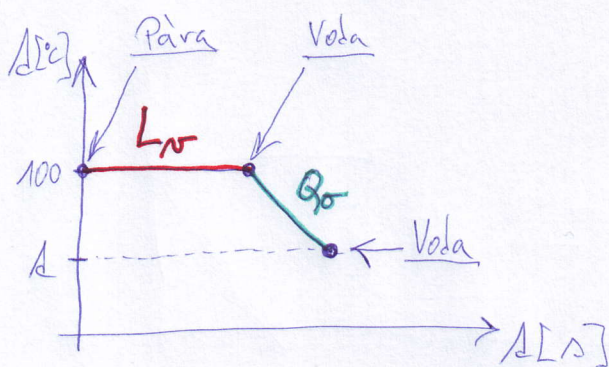
$$t_r = t_{\text{hor}} = 100 \text{ }^\circ\text{C}$$

$$t = ? \text{ } [^\circ\text{C}]$$

$$l_v = 2\,260\,000 \frac{\text{J}}{\text{kg}}$$

$$c_r = 4200 \frac{\text{J}}{\text{kg} \cdot ^\circ\text{C}}$$

Náčrt:



Plati:

$$Q_p = Q_0 + L_v$$

Vzorečky:

$$Q_p = m_r \cdot c_r \cdot (t - t_{\text{hor}})$$

$$Q_0 = m_p \cdot c_r \cdot (t_r - t)$$

$$L_v = m_p \cdot l_v$$

2.

$$Q_p = Q_o + L_v$$

$$m_w \cdot c_w \cdot (A - A_{ow}) = m_p \cdot c_p \cdot (A_{pw} - A) + m_p \cdot l_v$$

$$0,8 \cdot 4200 \cdot (A - 10) = 0,02 \cdot 4200 \cdot (100 - A) + 0,02 \cdot 2260000$$

$$3360 \cdot (A - 10) = 84 \cdot (100 - A) + 45200$$

$$3360A - 33600 = 8400 - 84A + 45200$$

$$3360A + 84A = 8400 + 45200 + 33600$$

$$3444A = 87200$$

$$A = \frac{87200}{3444}$$

$$A = 25,3 \text{ } ^\circ\text{C}$$

Výsledná teplota vody je 25,3 °C.