

$$m = m_l = 3 \text{ kg}$$

$$t_0 = -5^\circ\text{C}$$

$$t_1 = 0^\circ\text{C}$$

$$t_2 = 100^\circ\text{C}$$

$$Q = ? \text{ [J]}$$

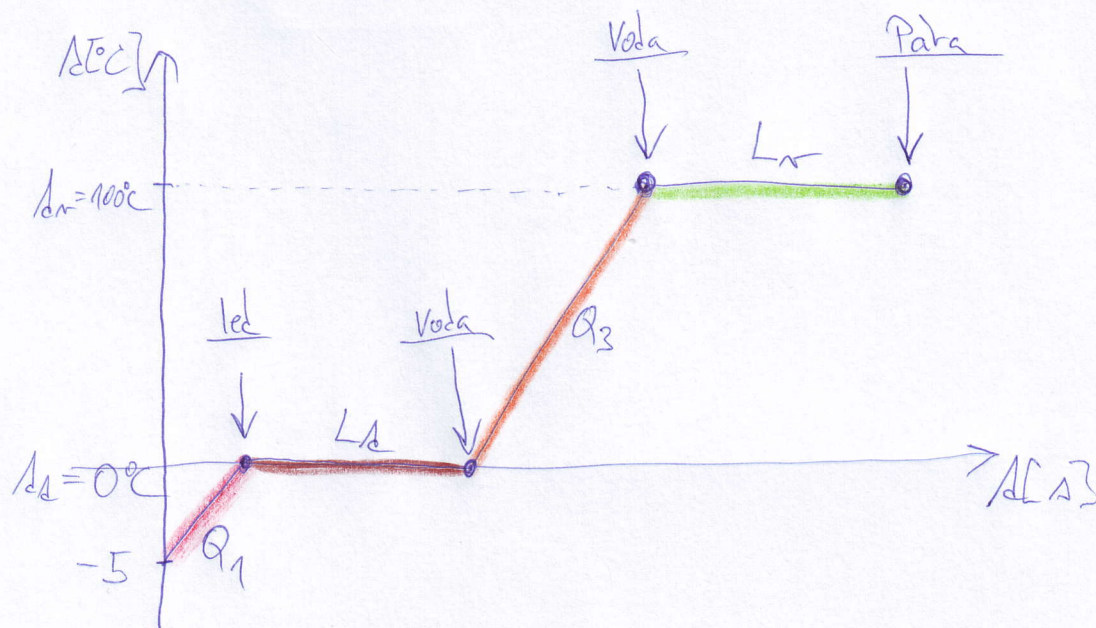
$$c_l = 2100 \frac{\text{J}}{\text{kg}\cdot^\circ\text{C}}$$

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

$$l_s = 334\,000 \frac{\text{J}}{\text{kg}}$$

$$l_v = 2260 \frac{\text{kJ}}{\text{kg}} = 2\,260\,000 \frac{\text{J}}{\text{kg}}$$

Náčrt:



Vzorečky:

$$Q_1 = m \cdot c_l \cdot (t_1 - t_0)$$

$$Q_3 = m \cdot c_r \cdot (t_2 - t_1)$$

$$Q_2 = L_s = m \cdot l_s$$

$$Q_4 = L_v = m \cdot l_v$$

$$Q = Q_1 + Q_2 + Q_3 + Q_4$$

$$Q_1 = m \cdot c_d \cdot (A_d - A_0)$$

$$Q_1 = 3 \cdot 2100 \cdot (0 - (-5))$$

$$Q_1 = 31\ 500 \text{ J}$$

$$Q_2 = L_d = m \cdot l_d$$

$$L_d = 3 \cdot 334\ 000$$

$$L_d = 1\ 002\ 000 \text{ J}$$

$$Q_3 = m \cdot c_v \cdot (A_v - A_d)$$

$$Q_3 = 3 \cdot 4200 \cdot (100 - 0)$$

$$Q_3 = 1\ 260\ 000 \text{ J}$$

$$Q_4 = L_v = m \cdot l_v$$

$$L_v = 3 \cdot 2\ 260\ 000$$

$$L_v = 6\ 780\ 000 \text{ J}$$

$$Q = Q_1 + Q_2 + Q_3 + Q_4$$

$$Q = 31\,500 + 1\,002\,000 + 1\,260\,000 + 6\,780\,000$$

$$Q = 9\,073\,500 \text{ J} \approx 9,1 \text{ MJ}$$

Soustava přijala celkem 9,1 MJ tepla.