Aufgabe 11:

$M \cdot c_p = C_{m,p}$

$\dot{m}, \dot{Q}_{12}, t_1 \rightarrow t_2$

$$\dot{Q}_{12} = \dot{m} \cdot \overline{c_p}\Big|_{t_1}^{t_2} (t_2 - t_1) = \frac{\dot{m}}{M} M \overline{c_p}\Big|_{t_1}^{t_2} \cdot (t_2 - t_1) = \dot{m} \overline{C_{m,p}}\Big|_{t_1}^{t_2} (t_2 - t_1)$$

$\dot{m} = 0{,}1288 \frac{mol}{s}$

$$\overline{C}\Big|_{t_1}^{t_2} = \frac{(t_2 - t_0)\overline{C}\Big|_{t_0}^{t_2} - (t_1 - t_0)\overline{C}\Big|_{t_0}^{t_1}}{t_2 - t_1}$$

t	C
0	35,92
70	37,50
100	38,17

$$\overline{C}\Big|_{0°C}^{70°C} = 37{,}50 \frac{J}{mol\,K}$$

„iterativ":

$$t_2 = t_1 + \frac{\dot{Q}_{12}}{\dot{m}\,\overline{C}\Big|_{t_1}^{t_2}}$$

$t_{2,alt}$	$\overline{C}\Big|_{t_0}^{t_2}$	$t_{2,neu}$
–	40	696,0
696,0	47,92	592,6
592,6	46,87	604,3

Schätze: $\overline{C}\Big|_{t_1}^{t_2} = 40 \frac{J}{mol\,K}$

$$f(t_2) := \dot{Q}_{12} - \dot{m}\,\overline{c_p}\Big|_{t_1}^{t_2} (t_2 - t_1) = 0$$