$$Q = c \cdot m \cdot \Delta T = c \cdot m \cdot \Delta \vartheta \qquad \Delta T = T_e - T_b \qquad C' = c \cdot m$$
$$Q = C' \cdot \Delta T = C' \cdot \Delta \vartheta \qquad \Delta \vartheta = \vartheta_e - \vartheta_b \qquad p = \frac{Q}{\Delta t}$$

mengsel: $Q_0 = |Q_A| \Rightarrow Q_0 = -Q_A \Rightarrow Q_0 + Q_A = 0$

Oef 29 p. 177

geg:

KOP	KOFFIE	MELK
$C'_{1KOP} = 180 \frac{J}{°C}$	$m_{KOF} = 0,190 \, kg$	$m_m = 0,037 \, kg$
$\vartheta_{KOP} = 72,0°C$	$\vartheta_{KOF} = 72,0°C$	$\vartheta_m = 6,0°C$
	$c_{KOF} = 4186 \frac{J}{kg \cdot °C}$	$c_m = 4186 \frac{J}{kg \cdot °C}$

gevr: ϑ_e

opl:

$$Q_0 = |Q_A| \qquad\qquad Q_0 + Q_A = 0$$
$$\Downarrow \qquad\qquad\qquad \Downarrow$$
$$Q_0 = -Q_A \qquad\qquad Q_m + Q_{KOF} + Q_{KOP} = 0$$
$$\Downarrow$$
$$Q_m = -(Q_{KOP} + Q_{KOF})$$
$$\Downarrow$$
$$Q_m = -Q_{KOP} - Q_{KOF}$$

$$c_m \cdot m_m \cdot \Delta \vartheta_m = -C' \cdot \Delta \vartheta_{KOP} - c_{KOF} \cdot m_{KOF} \cdot \Delta \vartheta_{KOF}$$
$$\Downarrow$$
$$c_m \cdot m_m \cdot (\vartheta_e - \vartheta_m) = -C'(\vartheta_e - \vartheta_{KOP}) - c_{KOF} \cdot m_{KOF}(\vartheta_e - \vartheta_{KOF})$$
$$\Downarrow$$
$$c_m \cdot m_m \vartheta_e - c_m \cdot m_m \vartheta_m = -C' \vartheta_e + C' \vartheta_{KOP} - c_{KOF} \cdot m_{KOF} \vartheta_e + c_{KOF} \, m_{KOF} \vartheta_{KOF}$$
$$\Downarrow$$
$$c_m \, m_m \vartheta_e + C' \vartheta_e + c_{KOF} \, m_{KOF} \vartheta_e = c_m \, m_m \vartheta_m + C' \vartheta_{KOP} + c_{KOF} \, m_{KOF} \vartheta_{KOF}$$
$$\Downarrow$$
$$\vartheta_e(c_m \, m_m + C' + c_{KOF} \, m_{KOF}) = \text{''} \qquad \text{''} \qquad \text{''}$$

$$\vartheta_e = \frac{c_m \, m_m \, \vartheta_m + C_i \, \vartheta_{KOP} + c_{KOF} \, m_{KOF} \, \vartheta_{KOF}}{c_m \, m_m + C_i + c_{KOF} \, m_{KOF}}$$

$$= \frac{4186 \, \frac{J}{kg \cdot °C} \cdot 0{,}037 \, kg \cdot 6{,}0 \, °C + 180 \, \frac{J}{°C} \cdot 72{,}0 \, °C + 4186 \, \frac{J}{kg \cdot °C} \cdot 0{,}190 \, kg \cdot 72 \, °C}{4186 \, \frac{J}{kg \cdot °C} \cdot 0{,}037 \, kg + 180 \, \frac{J}{°C} + 4186 \, \frac{J}{kg \cdot °C} \cdot 0{,}190 \, kg}$$

$$= 63{,}0 \, °C$$

Oef 31: geu: $\Delta \vartheta$

opl: ϑ_e