

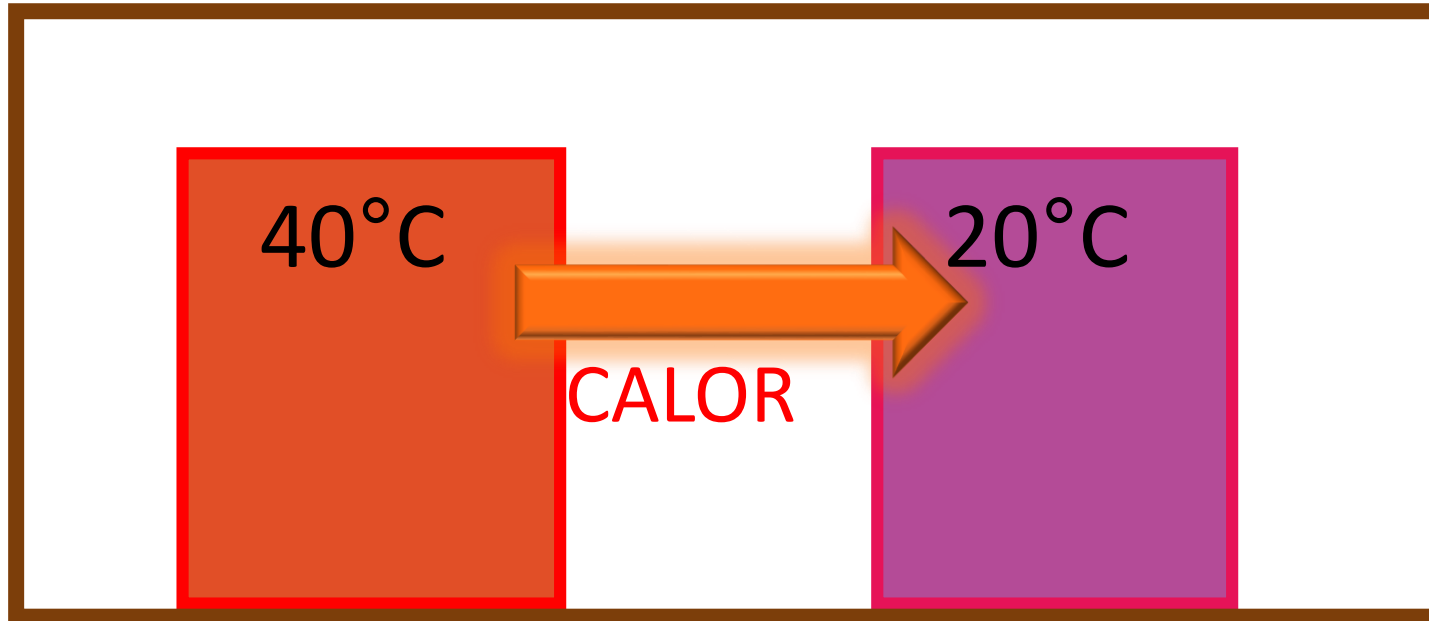
Trocas de calor

II

Prof. Jadoski

Física

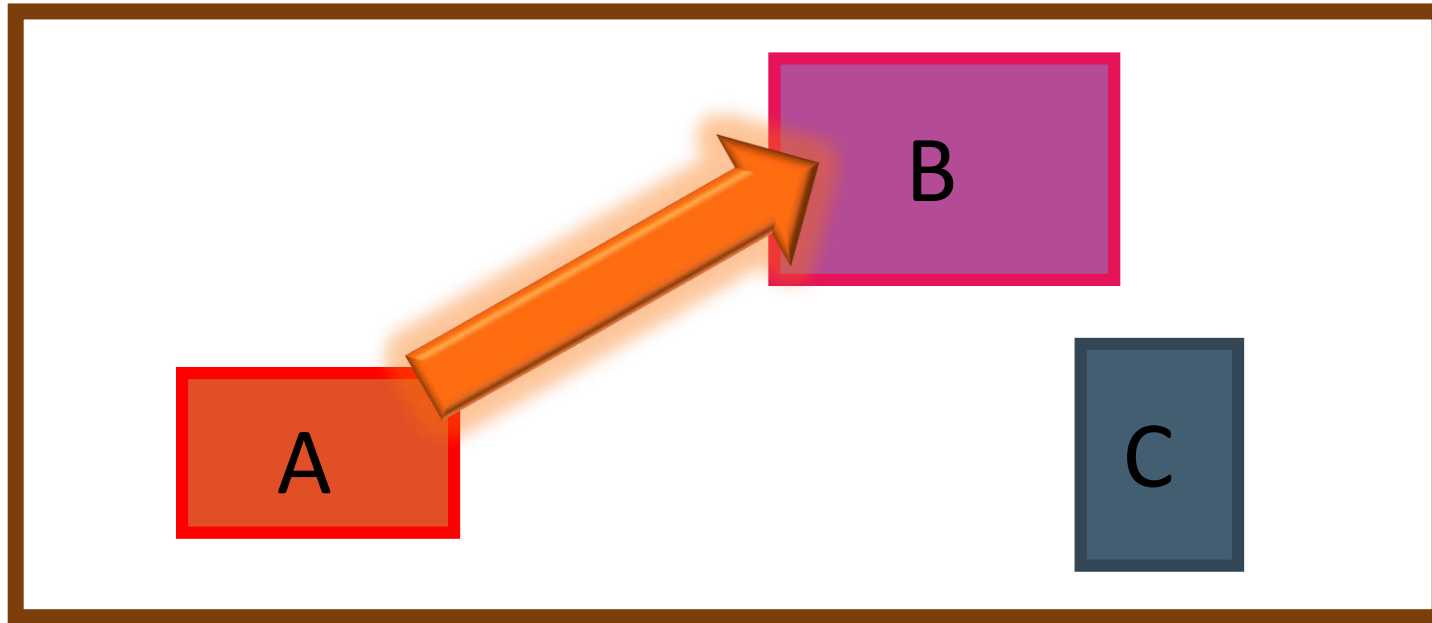
Trocas de calor



$$Q_{\text{perdido}} = Q_{\text{recebido}}$$

$$m \cdot c \cdot \Delta T = m \cdot c \cdot \Delta T$$

Princípio das trocas de calor



$$Q_{\text{perdido}} = Q_{\text{recebido}}$$

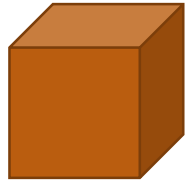
$$\Sigma Q = 0$$

$$Q_A = - 1000 \text{ J}$$

$$Q_B = + 600 \text{ J}$$

$$Q_C = +400 \text{ J}$$

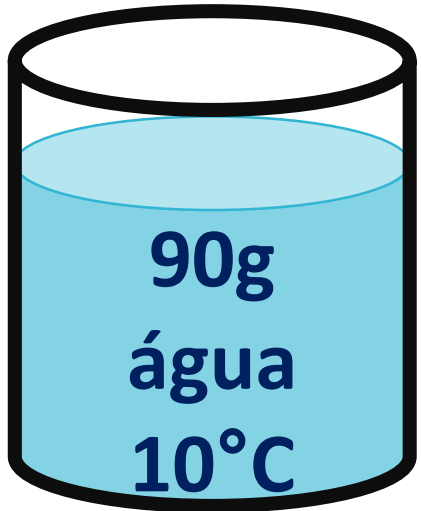
Princípio das trocas de calor



25g
 $c=0,4\text{cal/g}^\circ\text{C}$
 90°C

$$\Sigma Q = 0$$

$$Q_1 + Q_2 = 0$$

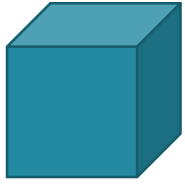
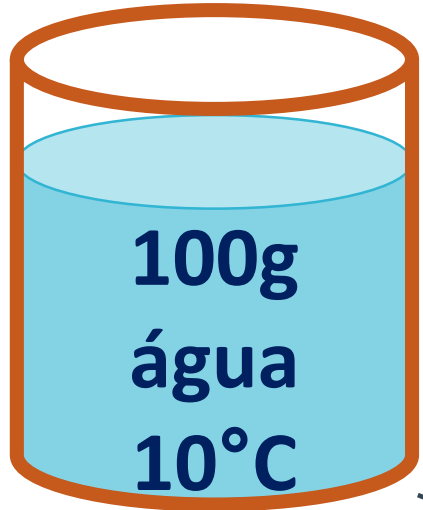


$$m_1 \cdot c_1 \cdot \Delta T_1 + m_2 \cdot c_2 \cdot \Delta T_2 = 0$$

$$90 \cdot 1 \cdot (T - 10) + 25 \cdot 0,4 \cdot (T - 90) = 0$$

$$T = 18^\circ\text{C}$$

Princípio das trocas de calor



50g
 $c = ?$
110°C

$T_{eq} = 30°C$

$$100 \cdot 1 \cdot (30 - 10) + 50 \cdot c \cdot (30 - 110) = 0$$

$C_{copo} = 200 \text{ cal}/°\text{C}$

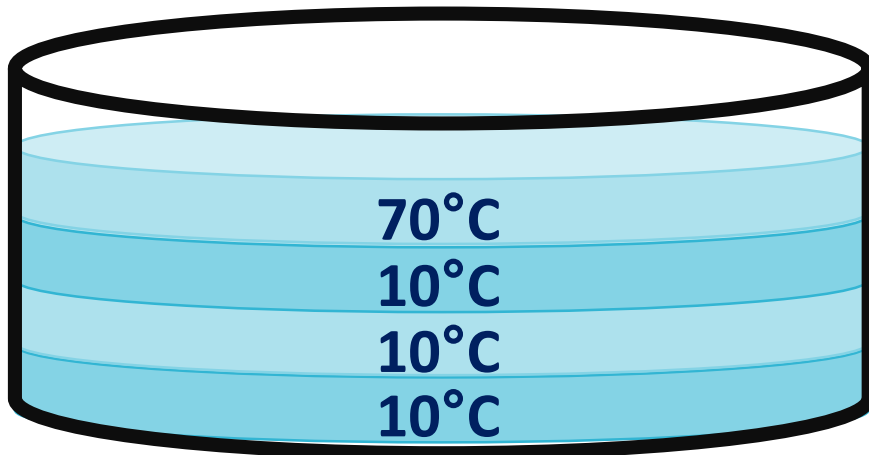
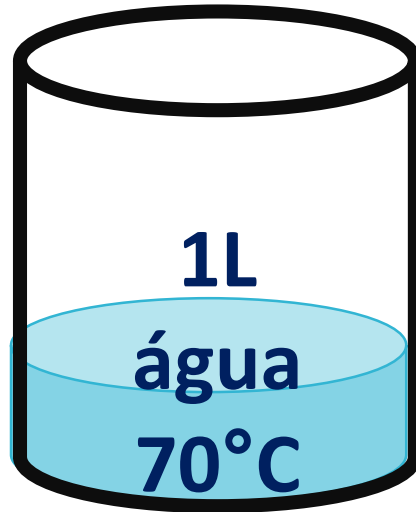
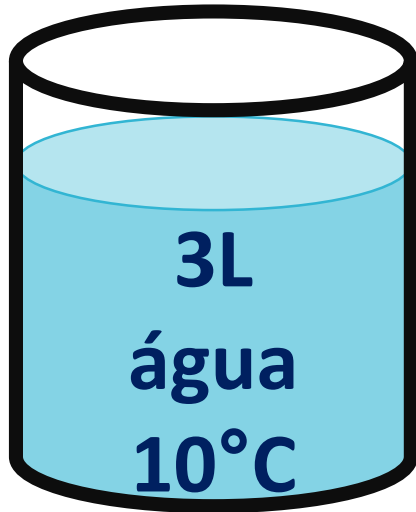
$$c = 0,5 \text{ cal}/\text{g}°\text{C}$$

$$\Sigma Q = 0$$

$$Q_1 + Q_2 = 0$$

$$m_1 \cdot c_1 \cdot \Delta T_1 + m_2 \cdot c_2 \cdot \Delta T_2 = 0$$

Média ponderada



$$\frac{70+10+10+10}{4}$$

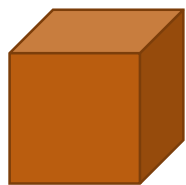
4

25°C

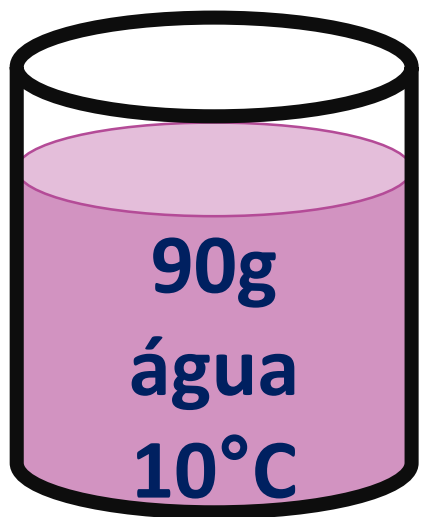
Media ponderada de C

$$C=25.0,4$$

$$C=10\text{cal}/^{\circ}\text{C}$$



$$\begin{aligned} &25\text{g} \\ &c=0,4\text{cal}/\text{g}^{\circ}\text{C} \\ &90^{\circ}\text{C} \end{aligned}$$



90g
água
10°C

$$C=90.1$$

$$C=90\text{cal}/^{\circ}\text{C}$$

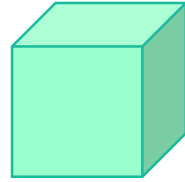
$$\underline{10+10+10+10+10+10+10+10+10+10+90}$$

$$10$$

$$T_{\text{eq}}=18^{\circ}\text{C}$$

E se mudar a fase?

50g
gelo fundente



$$\Sigma Q = 0$$

$$Q_{\text{água}} + Q_{\text{gelo}} = 0$$

$$m.c.\Delta T + m.L + m.c.\Delta T = 0$$

$$150.1.(T-80) + 50.80 + 50.1.(T-0) = 0$$

$$150T - 12000 + 4000 + 50T = 0$$

$$200T = 8000$$

$$T = 40^{\circ}\text{C}$$



Trocas de calor II

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