

# Opgavesæt 1

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1.

$$E = 300 \text{ kg} \cdot 4180 \text{ J}/(\text{kg} \cdot ^\circ\text{C}) \cdot 15 + 6 \text{ kg} \cdot 2.2 \text{ J}/(\text{kg} \cdot ^\circ\text{C}) \cdot 15$$

$$E = 18810.198 \text{ kJ}$$

$$\frac{E_{\text{H}_2\text{O}}}{E} \cdot 100 = \frac{18810 \text{ kJ}}{18810.198 \text{ kJ}} \cdot 100\% = 99.99847\%$$

2.

$$4.1 \text{ kJ} = 0.7 \text{ kg} \cdot c \cdot 7.3$$

(a)

$$\frac{4.1 \text{ kJ}}{5.11 \text{ kJ}} = c = 0.8023 \text{ kJ}/(\text{kg} \cdot ^\circ\text{C})$$

(b)

$$E = 0.7 \text{ kg} \cdot 0.823 \cdot 15$$

$$E = 8.6415 \text{ J}$$

3.

$$E = m \cdot c \cdot \Delta T + L \cdot m$$

$$0.2 \text{ kg} \cdot 4180 \text{ J}/(\text{kg} \cdot ^\circ\text{C}) \cdot 38 + 334 \text{ J}/(\text{kg} \cdot ^\circ\text{C}) \cdot 0.2 \text{ kg}$$

$$E = 31.8348 \text{ kJ}$$

4.

$$E_{\text{nytte}} = 1.1 \text{ kg} \cdot 4180 \text{ J}/(\text{kg} \cdot ^\circ\text{C}) \cdot 85 = 390.83 \text{ kJ}$$

$$E_{\text{tilført}} = 900 \text{ W} \cdot 900 \text{ s} = 810 \text{ kJ}$$

$$\eta = \frac{390.83 \text{ kJ}}{810 \text{ kJ}} \cdot 100\% = 48.25\%$$

5. ????

6.

$$6.5 \text{ grprotein} = 247 \text{ kJ}$$

$$20 \text{ grfedt} = 340 \text{ kJ}$$

$$\text{Protein procenten er: } \frac{340 \text{ kJ}}{587 \text{ kJ}} \cdot 100\% = 57.92\%$$

$$\text{Fedt procenten er: } \frac{247 \text{ kJ}}{587 \text{ kJ}} \cdot 100\% = 42.08\%$$