

5) a) $V_{\text{liq}} = 2,5 \text{ L}$ $m_{\text{eau}} = 2,5 \text{ kg}$ $\theta_i = 18^\circ\text{C}$
 $c = 4,18 \text{ kJ}/^\circ\text{C} \cdot \text{kg}$ $\theta_f = 100^\circ\text{C}$ $\Delta\theta = 82^\circ\text{C}$
 $Q = c \cdot m \cdot \Delta\theta = 4,18 \cdot 2,5 \cdot 82 = 856,9 \text{ kJ}$

b) besoin de $856,9 \text{ kJ}$
 1 kg donne $45,4 \text{ MJ}$ $\xrightarrow{\times 856,9}$ 145400
 $\xrightarrow{1000}$ $145,4$
 $\xrightarrow{\times 72}$ $10468,8$
 $\xrightarrow{1000}$ $10,4688$
 $\xrightarrow{\times 72}$ $753,7536$
 $\xrightarrow{1000}$ $0,7537536$
 1 kg donne $0,01887 \text{ kg}$

besoin de $m_{\text{pentane}} = 0,01887 \text{ kg} = 18,87 \text{ g}$
 $\rho = 0,621 \text{ g}/\text{cm}^3$
 $V_{\text{liq}} = 30,4 \text{ mL}$

c) 1 kg donne $45,4 \text{ MJ}$
 $\xrightarrow{1000}$ 45400
 $\xrightarrow{\times 72}$ 3268800
 $\xrightarrow{1000}$ $3268,8$
 $\xrightarrow{\times 72}$ $235353,6$
 $\xrightarrow{1000}$ $235,3536$
 $\xrightarrow{\times 72}$ $16945,4592$
 $\xrightarrow{1000}$ $16,9454592$
 $\xrightarrow{\times 72}$ $1220,0730624$
 $\xrightarrow{1000}$ $1,2200730624$
 $\xrightarrow{\times 72}$ $87,8452604928$
 $\xrightarrow{1000}$ $0,0878452604928$
 $\xrightarrow{\times 72}$ $6,3248587554816$
 $\xrightarrow{1000}$ $0,0063248587554816$
 $\xrightarrow{\times 72}$ $0,4553908303946752$
 $\xrightarrow{1000}$ $0,0004553908303946752$
 $\xrightarrow{\times 72}$ $0,0327881397884166144$
 $\xrightarrow{1000}$ $3,27881397884166144$
 $\xrightarrow{\times 72}$ $236,074606476600624$
 $\xrightarrow{1000}$ $0,236074606476600624$
 $\xrightarrow{\times 72}$ $17,097371666315245$
 $\xrightarrow{1000}$ $0,017097371666315245$
 $\xrightarrow{\times 72}$ $1,23101076097470764$
 $\xrightarrow{1000}$ $0,00123101076097470764$
 $\xrightarrow{\times 72}$ $0,08863277479017995$
 $\xrightarrow{1000}$ $8,863277479017995 \times 10^{-5}$
 $\xrightarrow{\times 72}$ $6,3815607848929564 \times 10^{-5}$
 $\xrightarrow{1000}$ $6,3815607848929564 \times 10^{-8}$
 $\xrightarrow{\times 72}$ $4,5947237651229286 \times 10^{-8}$
 $\xrightarrow{1000}$ $4,5947237651229286 \times 10^{-11}$
 $\xrightarrow{\times 72}$ $3,3082011108885086 \times 10^{-11}$
 $\xrightarrow{1000}$ $3,3082011108885086 \times 10^{-14}$
 $\xrightarrow{\times 72}$ $2,3819047998397262 \times 10^{-14}$
 $\xrightarrow{1000}$ $2,3819047998397262 \times 10^{-17}$
 $\xrightarrow{\times 72}$ $1,7149714558846028 \times 10^{-17}$
 $\xrightarrow{1000}$ $1,7149714558846028 \times 10^{-20}$
 $\xrightarrow{\times 72}$ $1,244779448236914 \times 10^{-20}$
 $\xrightarrow{1000}$ $1,244779448236914 \times 10^{-23}$
 $\xrightarrow{\times 72}$ $8,962412027305781 \times 10^{-24}$
 $\xrightarrow{1000}$ $8,962412027305781 \times 10^{-27}$
 $\xrightarrow{\times 72}$ $6,452936659659162 \times 10^{-27}$
 $\xrightarrow{1000}$ $6,452936659659162 \times 10^{-30}$
 $\xrightarrow{\times 72}$ $4,646114394954597 \times 10^{-30}$
 $\xrightarrow{1000}$ $4,646114394954597 \times 10^{-33}$
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 $\xrightarrow{1000}$ $3,34519236436731 \times 10^{-36}$
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 $\xrightarrow{1000}$ $2,408538502344462 \times 10^{-39}$
 $\xrightarrow{\times 72}$ $1,7341477216880126 \times 10^{-39}$
 $\xrightarrow{1000}$ $1,7341477216880126 \times 10^{-42}$
 $\xrightarrow{\times 72}$ $1,2585863596153691 \times 10^{-42}$
 $\xrightarrow{1000}$ $1,2585863596153691 \times 10^{-45}$
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 $\xrightarrow{1000}$ $9,061821789230658 \times 10^{-49}$
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 $\xrightarrow{1000}$ $6,544511688246074 \times 10^{-52}$
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 $\xrightarrow{1000}$ $4,712048415537172 \times 10^{-55}$
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 $\xrightarrow{1000}$ $3,392674859186764 \times 10^{-58}$
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 $\xrightarrow{1000}$ $2,43272590861447 \times 10^{-61}$
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 $\xrightarrow{1000}$ $1,752662654192418 \times 10^{-64}$
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 $\xrightarrow{1000}$ $1,261917111018541 \times 10^{-67}$
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 $\xrightarrow{1000}$ $9,085803199333495 \times 10^{-71}$
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 $\xrightarrow{1000}$ $6,541778303519116 \times 10^{-74}$
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 $\xrightarrow{1000}$ $4,710080378533764 \times 10^{-77}$
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 $\xrightarrow{1000}$ $3,39125787254431 \times 10^{-80}$
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 $\xrightarrow{1000}$ $2,431705668231903 \times 10^{-83}$
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 $\xrightarrow{1000}$ $1,75282808112697 \times 10^{-86}$
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 $\xrightarrow{1000}$ $9,08666077256021 \times 10^{-92}$
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 $\xrightarrow{1000}$ $1,752405204482911 \times 10^{-107}$
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 $\xrightarrow{1000}$ $6,54144944935356 \times 10^{-116}$
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