

Re: Physics help

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In article <e2ditp\$8cp7\$1@xxxxxxxxxxxxxxxxxxxx>, V - Man <Vman@xxxxxxxxxxxx> wrote:

Most folks here are OK with providing help as long as you show your attempt at the problem.

Thanks for replying, Phil. Unfortunately, my attempt is futile. I have no idea how to approach solving this problem. Our prof. is a chemistry prof. and has never taught physics before. So, I am trying with no success to answer this one question based on his limited lecture notes. The text is not much of a help either. All we get are the formulas with no problems to practice putting the formulas to work!!

Here's the problem (if anyone can help, great! If not, I understand):

"I take 1.0 kg of ice and dump it into 1.0 kg of water and, when equilibrium is reached, I have 2.0 kg of ice at 0 deg C. The water was originally at 0 deg C. The specific heat of water = 1.00 kcal/kg*deg C, the specific heat of ice = 0.50 kcal/kg*C, and the latent heat of fusion of water is 80 kcal/kg. The original temp of the ice was.....?????"

If anyone would just maybe be kind enough to even help setting it up, I would really appreciate it. Thanks and again, sorry for the intrusion.

As John Christiansen noted, the temperature of the water does not change. Another thing to note is that none of the original chunk of ice melts.

The heat given up by the water is

$$Q_{\text{water}} = L m_{\text{water}}$$

where L is the heat of fusion and m is the mass.

The heat absorbed by the ice is

$$Q_{\text{ice}} = C m_{\text{ice}} (T_f - T_i)$$

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where T_i is the initial temperature, and $T_f = 0\text{C}$ is the final temperature.

$Q_{\text{water}} = Q_{\text{ice}}$, so, after sorting out the sign convention, solving the problem becomes simple algebra.

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"He who only sees business in business is a fool."

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