

QUIZ # 11. Chapter 12. Heat. PHYS 203.

NAME:

A 0.072 kg ice cube at 0°C is dropped into a cup holding 0.35 kg of water at 10°C . Assume that the cup and the surroundings can be ignored and $c_{\text{water}} = 4186 \text{ J/kg } ^\circ\text{C}$, $L_f = 33.5 \times 10^4 \text{ J/kg}$.

(a) Find the final temperature of the system, and the amount of ice (if any) remaining.

(b) Find the initial temperature T_i of the water that would just barely melt all the ice. [Hint: If the water starts with a temperature above T_i , the final temperature of the system will be greater than 0°C .]