

Chemistry 11

Practice on Heat Calculations

The following data were obtained in an experiment designed to determine the heat of fusion of ice. Use the data to do the calculations below:

1	Mass of Empty Styrofoam Cup	1.79 g
2	Mass of Cup and Warm Water	104.57 g
3	Initial Temperature of Warm Water	42 °C
4	Final Temperature of Water	18 °C
5	Final Mass of Cup and Contents	131.85 g

Calculations:

1. Calculate the mass of the original warm water in the cup in grams and kilograms

_____ g

_____ kg

2. Calculate the temperature change (ΔT)

_____ °C

3. Calculate the mass of the ice cube in grams and kilograms

_____ g

_____ kg

4. Calculate the total heat lost by the original warm water in the cup. ($C_{\text{H}_2\text{O}} = 4180 \text{ J/Kg} \cdot ^\circ\text{C}$)

_____ J

5. Calculate the heat used to warm the ice water from 0 °C to the final temperature.
($C_{H_2O} = 4180 \text{ J/Kg} \cdot ^\circ\text{C}$)

_____ J

6. Calculate the heat used to melt the ice cube.

_____ J

7. Calculate the heat of fusion of ice in J/Kg

_____ J/Kg