

Ice Ice Baby

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Practical Applications of Advanced Mathematics

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Abstract:

Thermodynamics plays a pivotal role in everyday life as there is almost always energy being transferred between two systems. One of the most practical applications of thermodynamics is the energy and heat being transferred between ice and water. Although thermodynamic equations are proven to work, it is unsure whether the equations can be applied to a real-life situation and still give accurate results. To test out the validity of the equations, 20 trials with different amounts of ice, all differing by one gram of ice, were put in water and timed while they were in the goal temperature range. The results showed that the grams calculated by the equations were close but not exact due to external forces acting on the process of the ice melting. It was concluded that the thermodynamic equations and laws hold for closed systems only unless modified to satisfy that external forces.