

CALORIMETRY

NAME _____

SECTION _____

1. Define each of the quantities in the equation

$$q = m \cdot C_s \cdot \Delta T$$

2. What is the unit on each quantity?

q _____

m _____

ΔT _____

3. a. Rearrange the equation given in Question 1 and solve for C_s .

b. What are the units for C_s ?

4. A 175 g sample of water initially at 23.45 °C absorbs some heat. The final temperature of the sample after absorbing the heat is 26.85 °C. Calculate the amount of heat absorbed by the sample of water. (NOTE: The specific heat for water is 4.184 J g⁻¹ °C⁻¹.)

5. A piece of iron weighing 80.0 g initially at a temperature of 92.6 °C released the same amount of heat to the 175 g sample of water in Question 4. Assume the final temperature of the metal is the same as the final temperature of the water in Question 4. What is the specific heat for iron?
6. The four pictures shown below summarize an experiment. A zinc cylinder of mass 57.968 g was placed in boiling water at 100 °C then plunged into a calorimeter containing 169.340 g of water at 24.64 °C. The temperature of the water and zinc cylinder finally levels off at 26.91 °C. Calculate the specific heat of zinc metal.

Answer:

