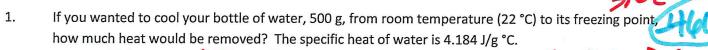
Anne Surkeyo

Calorimetry Calculations



$$M = 500g$$
 $\Delta T = 0 - 22 = -22$
 $C = 4.18$

2. You have a gold ring with a mass of 30 g and a copper ring with the same mass. How much heat would you have to add to each ring to raise their temperatures from 20 °C to 50 °C? The specific heat of gold is 0.129 J/g °C, and the specific heat of copper is 0.385 J/g °C.

$$\frac{601d}{601} \qquad \Delta T = 50.20 = 30$$

$$m = 309 C = 0.129 Q = (30)(30)$$

Which metal is easier to heat up? How do you know?

Gold = requires less energy (specific heat is smaller

A blacksmith has heated a 500 g bar of iron to 200 °C and molded it into a horseshoe. He then puts it in a tub of water at 20 °C to cool it. How much heat is released by cooling the horseshoe? The specific heat of iron is .444 J/g °C.

Where did that energy go? Is this process endothermic or exothermic? How can you tell by your calculation?

- Energy is transferred to the surroundings - Value is negative = exothermic

4. A diamond has a specific heat of 0.502 J/g °C. How much energy is needed to raise the temperature of an 85 g diamond from 0 °C to 92 °C?

$$Q = MC\Delta T$$
 $\Delta T = 92 - 0 = 92$
 $M = 85g$
 $C = 0.502$

Endothermic

Exothermic