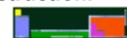


**Revised August 2012**



## HONORS WORKSHEET 1c: Specific Heat Capacity



1. If 30.0 grams of silver absorbs 375 J of energy and the original temperature of the silver is 23.0 degrees Celsius, calculate the final temperature of the silver. (3)

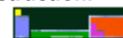
Specific heat capacity of silver = 0.235 J/gK

2. How much energy is absorbed when 300. g of water, increases in temperature from 22.0 °C to 90.0 °C? (2)

Specific heat capacity of water = 4.18 J/gK

3. How much energy (in kJ) is released when 100. g of a metal with a specific heat capacity of 0.44 J/gK cools from 105°C to 65°C? (2)

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4. The temperature of a piece of metal that has a specific heat capacity of  $0.235 \text{ J/gK}$  falls by  $120 \text{ K}$  and in the process it releases  $2001 \text{ Joules}$  of energy. What is the mass of the metal?  
(2)

5. Given the following specific heat capacities, use the data below to identify substance X.

| Substance | Specific Heat Capacity $\text{Jg}^{-1}\text{K}^{-1}$ |
|-----------|--|
| Aluminum  | 0.900  |
| Carbon    | 0.720  |
| Water     | 4.19   |
| Copper    | 0.391  |
| Mercury   | 0.143  |

A sample of substance X that has a mass of  $13.66 \text{ g}$  is heated to the point where it has absorbed  $199.74 \text{ J}$  of energy and its temperature has risen from  $298\text{K}$  to  $334\text{K}$ . (2)