Homework Check: Specific Heat Capacity   Name _____

Show work for all problems!

1. Determine the specific heat of a substance that absorbs 2700 joules of heat when a sample of 100.0 g of the substance increases in temperature from 10.0 °C to 70.0°C?   Then determine its identity from the table.

Substance	Specific Heat Capacity (in J/gC)
Aluminum	0.902
Copper	0.398
Water	4.184
Iron	0.45
Ammonia	4.7

2. Convert the units of energy below using the following conversion: **4.184 Joules = 1 calorie**. Show your work!!!

19.0 Joules |———————| =   cal   350 cal |———————| =   J

3. If 200.0 grams of water is to be heated from 24.0 °C to 100.0°C to make a cup of tea, how much heat must be added? The specific heat of water is 4.18 J/g °C

4. The specific heat capacity of silver is 0.056 **cal**/g °C. How much will the temperature change if 55.00 g of the metal absorbs 47.3 **calories** of heat?

5. Granite has a specific heat of 800.0 J/g·°C. What mass of granite is needed to store 150,000 J of heat if the temperature of the granite is to be increased by 15.5°C?

1. Determine the specific heat of a substance that absorbs 4127 joules of heat when a sample of 75 g of the substance increases in temperature from 22 °C to 83°C?   Then determine its identity from the table.

Substance	Specific Heat Capacity (in J/gC)
Aluminum	0.902
Copper	0.398
Water	4.184
Iron	0.45
Ammonia	4.7

2. Convert the units of energy below using the following conversion: **4.184 Joules = 1 calorie**.   Show your work!!!

750 cal | $\dfrac{\qquad}{\qquad}$ | =   J

98.0 J | $\dfrac{\qquad}{\qquad}$ | =   cal

3. A sample of 100.0 mL of water at 37°C is cooled until its temperature is 4.0 °C. If the specific heat of water is 4.18 J/g °C, calculate the amount of heat energy released to cause this drop in temperature.

4. A total of 32.9 **calories** of heat are absorbed as 58.3 g of lead. How much did the temperature change if the specific heat of lead is 0.0305 **cal**/g °C?

6. Tin has a specific heat of 0.2274 J/g °C. What mass of tin is required to store 37,000 J of heat if the temperature of the tin is increased by 75.0°C?