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 g of the substance increases in temperature from 10 °C to 70°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!!!

$$\frac{19.0 \text{ Joules}}{\quad} \left| \frac{\quad}{\quad} \right| = \quad \text{cal} \qquad \frac{350 \text{ cal}}{\quad} \left| \frac{\quad}{\quad} \right| = \quad \text{J}$$

3. If 200 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. How many grams of water would be required to release 2200 joules of heat if the temperature drops from 100°C to 28°C? The specific heat of water is 4.18 J/g °C

5. Granite has a specific heat of 800 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?

Homework Check: Specific Heat Capacity Name _____

Show work for all problems!

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!!!

$$\frac{750\ \text{cal}}{\quad}\left|\frac{\quad}{\quad}\right| = \quad \text{J} \qquad\qquad \frac{98.0\ \text{J}}{\quad}\left|\frac{\quad}{\quad}\right| = \quad \text{cal}$$

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 54.0 joules of heat are absorbed as 58.3 g of lead is heated from 12.0°C to 42.0°C. From these data, what is the specific heat of lead?

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?