Specific Heat Worksheet

$q = (mass)(C_{sp})(\Delta T)$

Units for specific heat = $\frac{J}{g \cdot °C}$

1. What is the specific heat of a substance that absorbs 2.5×10^3 joules of heat when a sample of 1.0×10^4 g of the substance increases in temperature from 10.0°C to 70.0°C?

2. How many grams of water would require 2.20×10^4 joules of heat to raise its temperature from 34.0°C to 100.0°C? The specific heat of water is 4.18 J/g·°C

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. A block of aluminum weighing 140. g is cooled from 98.4°C to 62.2°C with the release of 1080 joules of heat. From this data, calculate the specific heat of aluminum.

5. A cube of gold weighing 192.4g is heated from 30.0°C to some higher temperature, with the absorption of 226 joules of heat. The specific heat of gold is 0.030 J/g·°C. What was the final temperature of the gold?

6. 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?

7. The specific heat of wood is 2.03 J/g·°C. How much heat is needed to convert 550 g of wood at -15.0°C to 10.0°C?

8. What is the total amount of heat needed to change 2.25 kg of silver at 0.0°C to 200.0°C? The specific heat of silver is 0.129 J/g·°C