CW/HW: Calorimetry

Name:

Directions: Solve each problem completely, show all your work, use significant figures and units and circle your final answers.

1. A piece of metal weighing 59.047 g was heated to 100.0°C and put into 100.0 g of water, initially at 23.7°C. The metal and water were allowed to come to an equilibrium temperature, determined to be 27.8°C. Assuming there is no heat loss to the surroundings:
   1. What is the heat absorbed by the water?
   2. What is the heat released by the metal?
   3. What is the heat capacity of the metal?
2. A 28.2 g sample of nickel is heated to 99.8°C. C and placed in a coffee-cup calorimeter containing 150.0 g of water at a temperature of 23.5°C. After the metal and water reach equilibrium, the temperature of the metal and the water is 25.0°C. Assuming there is no heat loss to the surroundings:
   1. What is the heat absorbed by the water?
   2. What is the heat released by the metal?
   3. What is the heat capacity of the metal?
3. A 50.0g sample of lead is heated to 111° and placed in a coffee-cup calorimeter containing 88.00g of water initially at 24.8°C. After the metal and the water reach equilibrium, the temperature of the metal and the water is 26.6°C. Assuming there is no heat loss to the surroundings:
   1. What is the heat absorbed by the water?
   2. What is the heat released by the metal?
   3. What is the heat capacity of the metal?