**HEAT Practice Problems Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per: \_\_\_\_**

**Q = m x ∆T x C**

Q = heat (J)

m = mass

∆T = change in temperature

C = specific heat

1. What is the difference between heat and temperature? What units do you use to measure each?
2. What is the 1st Law of thermodynamics?
3. A 5.0 g sample of copper was heated from 20°C to 80°C. How much energy was used to heat Cu? (Specific heat capacity of Cu is 0.0385 J/g °C)
4. How much heat is absorbed by 20 g granite boulder as energy from the sun causes its temperature to change from 10°C to 29°C? (Specific heat capacity of granite is 0.803 J/goC)
5. How much heat is released when 30 g of water at 96°C cools to 25°C? The specific heat of water is 4.184 J/g°C.
6. If a 3.1g ring is heated using 41.84 J, its temperature rises 17.9°C. Calculate the specific heat capacity of the ring.
7. The temperature of a sample of water increases from 20°C to 46.6°C as it absorbs 23.64 kJ of heat. What is the mass of the sample? (Specific heat of water is 4.184 J/g °C)
8. The temperature of a sample of iron with a mass of 10.0 g changed from 50.4°C to 25.0°C with the release of 197 J of heat. What is the specific heat of iron?
9. A 155 g sample of an unknown substance was heated from 25°C to 40°C. In the process, the substance absorbed 2.380 kJ of energy. What is the specific heat of the substance?
10. What is the specific heat of an unknown substance if a 2.50 g sample releases 50.21 J as its temperature changes from 25°C to 20°C?