HEAT CALCULATIONS

Name _____

Heat is measured in units of joules or calories. The amount of heat given off or absorbed can be calculated by the following formula.

$\Delta Q = m \times \Delta T \times C$

heat = (mass in grams) (temperature change) (specific heat)

The specific heat of water = 1.0 cal/g C° or 4.2 joules/g C°

Solve the following problems.

1. How many calories are absorbed by a pot of water with a mass of 500 g in order to raise the temperature from 20° C to 30° C?

   Answer: _____

2. How many joules would be absorbed for the water in Problem 1?

   Answer: _____

3. If the specific heat of iron = 0.46 J/g C°, how much heat is needed to warm 50 g of iron from 20° C to 100° C?

   Answer: _____

4. If it takes 105 calories to warm 100 g of aluminum from 20° C to 25° C, what is the specific heat of aluminum?

   Answer: _____

5. If it takes 31,500 joules of heat to warm 750 g of water, what was the temperature change?

   Answer: _____