**CW/HW – Heat Problems**   **q = mC∆T**

**∆T = Tfinal - Tinitial**

Name

1. How much heat energy, in joules, is required to heat 3000.0g of Al from 20.0°C to 100.°C?

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| **Specific Heat Capacities** | |
| Substance | C (J/g°C) |
| aluminum | 0.870 |
| copper | 0.385 |
| diamond | 0.630 |
| gold | 0.129 |
| silver | 0.24 |
| steam | 2.010 |

1. How much heat, in joules, is released when 15.0g of steam is cooled from 250.°C to 210.°C?
2. What mass of gold takes -278.00J of energy to change temperature from 80.00°C to 40.00°C? Is this process endothermic or exothermic?
3. If 6920.0J of heat is added to a 852g block of metal, the temperature increases by 8.95°C (∆T). Calculate the specific heat capacity of the metal.
4. Three 100.0g samples of copper, silver, and gold are available. Each of these samples is initially at 24°C, and then 5000 J of heat is applied to each sample. Which sample will end up with the highest temperature