**Name: Period: Seat#:**

**Worksheet #6**

**Specific Heats: Latent Heats:** *(positive if melting/vaporizing, negative if freezing/condensing)*

Cice: 2.09 Fusion: 334

Cwater: 4.184 Vaporization: 2260

Csteam: 1.87

**Conceptual Questions**

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| --- | --- | --- |
| 1. Why do heating curves “go up” and why do cooling curves “go down?” Explain. | 1. Explain what happens to the molecules when heat energy is added during a phase change.Draw a diagram. | 1. Explain what happens to the molecules when heat energy is added and the temperature raises. Draw a diagram. |
| 1. Draw and label EVERY part of a heating curve for a 100g sample of ice that is heated from -16°C to 105°C. Calculate the total amount of heat required. | | |

**Mathematical Questions:**

* Show plugging in the variables to the correct places in the equation
* Get an actual answer, including units! Box your answer!
* Don’t forget - you must show units and any conversions that might be involved.
* Some answers are provided at the end. They are underlined.

|  |  |
| --- | --- |
| **Graph and Line Segments** | **Calculations (Box Final Answer)** |
| 1. Find the amount of heat (Q) needed to raise the temperature of 5.00 g of water from 20.0°C to 105°C. |  |
| 1. How much energy is required to completely vaporize 200.0 g of 25.00ºC liquid water? |  |
| 1. How much energy is required to melt 150.0 g of  –18ºC ice, and bring the resulting liquid water up to 25.00ºC? |  |
| 1. How much heat is needed to raise the temperature of 10g ice at -20°C to 0°C. |  |
| 1. How many joules are required to melt 275.0 kg  of ice? |  |
| 1. Determine the heat needed to raise the temperature of 15 g of ice at -20ºC to 125ºC. |  |
| 1. Calculate the amount of heat transferred when 2.0 L of water at 25.0°C (1mL = 1g) is frozen to  -10.0°C. Is this process exothermic or endothermic? |  |
| 1. What mass of water (in kg) at 100.0°C could be completely vaporized with 2.70 x 106 kJ of energy? |  |
| 1. How many joules (J) of energy are released when 6.80x103g of steam at 100.0°C are completely frozen to ice at 0.0°C? |  |