**Name: Period: Seat#:**

**Worksheet #3**

**Directions:**  Use the heating curve below for ice at -35°C being converted to steam at 128°C.

If you need a refresher on Heating Curve calculations here is a YouTube video of the Honors
Chemistry lecture on the topic. <https://youtu.be/g2srRytHiX0>



|  |  |
| --- | --- |
| 1. Label each of the blank rectangle boxes on the graph above with one of the following terms. Terms can be used more than once.
	* Warming
	* Melting
	* Vaporizing
 | Which equation do you use for each of the following sections?* Warming 🡪 q =
* Melting 🡪 q =
* Vaporizing 🡪 q =
 |
| 1. What are the following values for water? Include both J/g and kJ/mol answers.

 J/g kJ/mol* + Hfus =
	+ Hvap =
 | 1. Indicate what is happening in each line segment

 ∆ Kinetic Energy ∆ Potential Energy Line 1 Line 2Line 3Line 4Line 5 |
| 1. How many calories are needed to convert 312.0g of ice at -35°C to liquid to water at 25.0°C *38200 cal*

*(remember, 1 cal = 4.184J)* |
| 1. How many joules (J) of energy are released when 6.80E3 g of steam at 100.0°C are completely frozen to ice at 0.0°C ? *2.05 x 107J*
 |
| 1. How much energy (in J) is required to completely melt 205.0 mol of ice at 0.0°C ? *1.235 x 106 J*
 |
| 1. Using the information in the chart below, how much heat is needed to raise the temperature of 85g of potassium from 25°C to 2,500°C ? *3.41 x 105 J*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Substance** | **C (solid)**$$\left(\frac{J}{g∙K}\right)$$ | **M.P.**($℃)$ | **ΔHfus**$$\left(\frac{J}{g}\right)$$ | **C (liquid)**$$\left(\frac{J}{g∙K}\right)$$ | **B.P.**($℃)$ | **ΔHvap**$$\left(\frac{J}{g}\right)$$ | **C (gas)**$$\left(\frac{J}{g∙K}\right)$$ |
| K | 0.560 | 62 | 61.4 | 1.070 | 760 | 2025 | 0.671 |

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