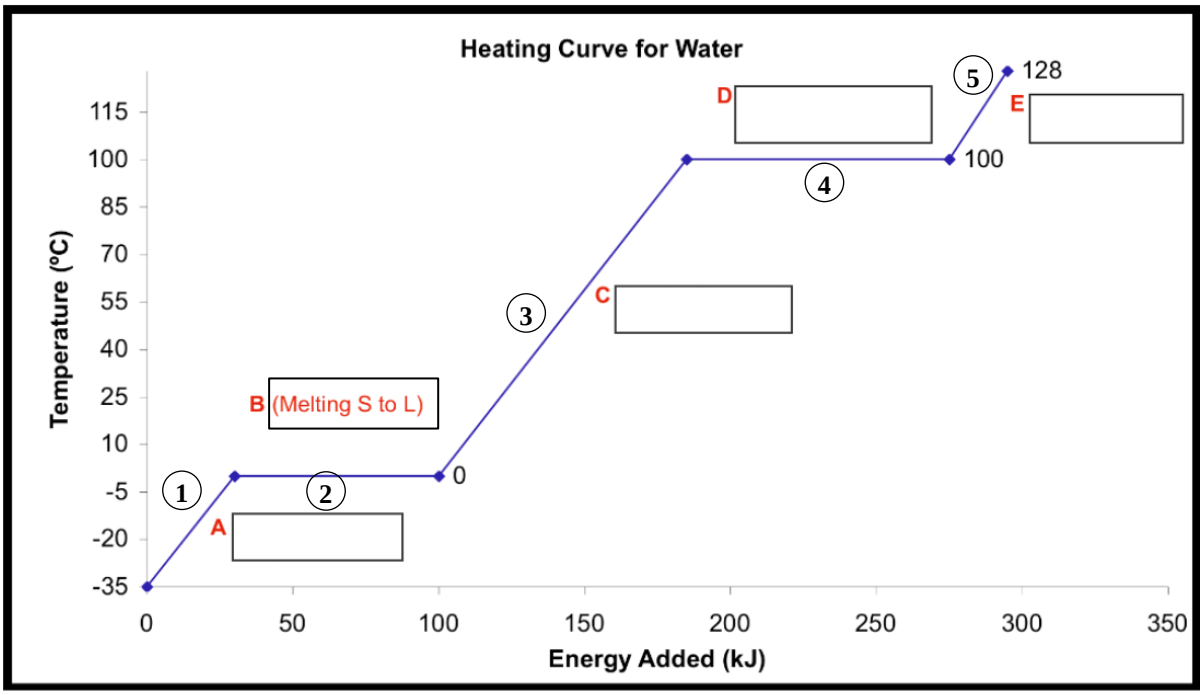
Dougherty Valley HS Chemistry - AP
IMFs – Heating Curve Practice

Worksheet #3

Name: **Period:** **Seat#:**

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 =

2) What are the following values for water? Include both J/g and kJ/mol answers.

	J/g	kJ/mol
• H_{fus} =		
• H_{vap} =		

3) Indicate what is happening in each line segment

	Δ Kinetic Energy	Δ Potential Energy
Line 1	☐	☐
Line 2	☐	☐
Line 3	☐	☐
Line 4	☐	☐
Line 5	☐	☐

4) 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)

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5) 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 10^7 J*

6) How much energy (in J) is required to completely melt 205.0 mol of ice at 0.0°C ? *1.235 x 10^6 J*

7) 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 10^5 J*

Substance	**C (solid)** $\left(\frac{J}{g \cdot K}\right)$	**M.P.** (°C)	**ΔH_{fus}** $\left(\frac{J}{g}\right)$	**C (liquid)** $\left(\frac{J}{g \cdot K}\right)$	**B.P.** (°C)	**ΔH_{vap}** $\left(\frac{J}{g}\right)$	**C (gas)** $\left(\frac{J}{g \cdot K}\right)$
K	0.560	62	61.4	1.070	760	2025	0.671