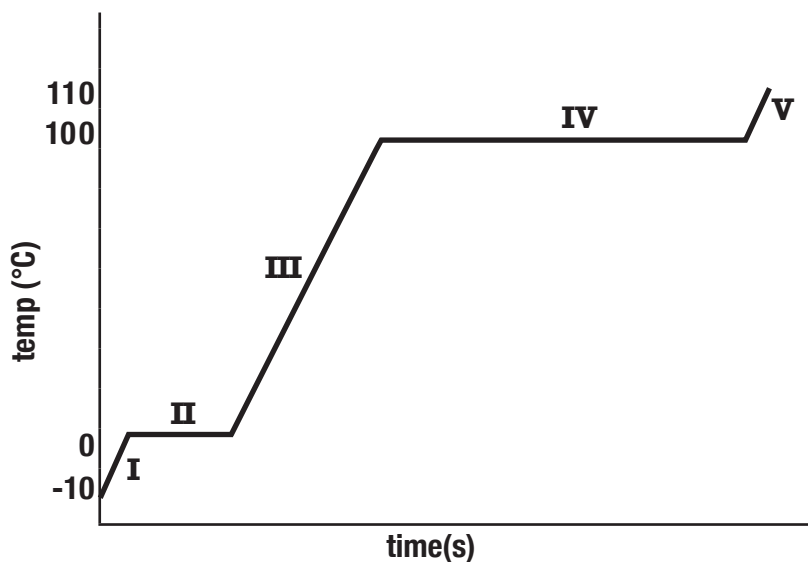


I. Label each of the following as “endothermic” or “exothermic”:

- _____ Products are more stable than reactants.
- _____ Kinetic energy is converted into potential energy.
- _____ evaporation
- _____ combustion
- _____ Water freezes.
- _____ Heat seems to disappear.

II. In each section of the diagram below, circle the best answer for what is happening to the kinetic and potential energy of the water molecules:



Section	Kinetic Energy	Potential Energy
I	(increase, decrease, no change)	(increase, decrease, no change)
II	(increase, decrease, no change)	(increase, decrease, no change)
III	(increase, decrease, no change)	(increase, decrease, no change)
IV	(increase, decrease, no change)	(increase, decrease, no change)
V	(increase, decrease, no change)	(increase, decrease, no change)

III. Discussion:

1. Three liquids of the same mass absorb the same amount of heat. Liquid A's temperature rises 20 °C, liquid B's rises 10 °C, and liquid C's doesn't change. Explain.

2. Why does the air inside the shower feel warm as the water vapor condenses?

3. Why does the temperature of boiling water not change, even though the water is being heated?

4. We know that molecules must collide in order to react. Why is energy required to make this happen? What is the energy called and how does it affect reaction rates?

IV. Work each of the following problems. SHOW ALL WORK.

5. a. Calculate the amount of heat released when 25.0 g of water at 25.0 °C cools to 0.0 °C.
- b. Calculate the amount of heat released when the same sample freezes.
6. What is the specific heat capacity of a 35 g sample of an unknown metal that releases 6700 J of heat when it cools from 94 °C to 29 °C?