



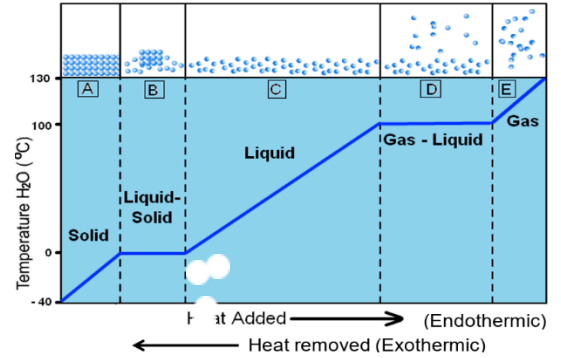
Name: _____ Period: _____

Assigned on Tuesday, October 07, 2025

9.1 Heating Curves

Due Monday, October 13, 2025

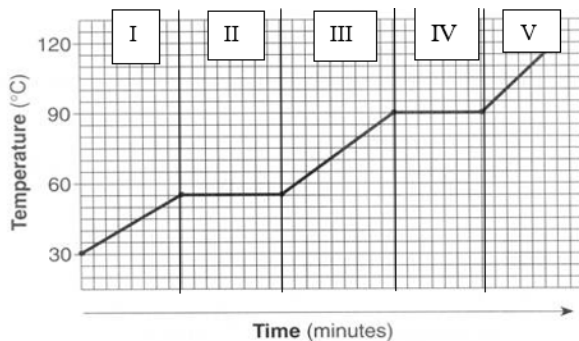
To the right is a diagram showing a typical *heating/cooling curve* for water. It reveals a wealth of information about the structure and changes occurring in water as it is heated or cooled through all three phases of matter at different temperatures. At the top of the diagram are pictures representing the typical particle arrangement as substances change through their states.



Identify by letters (A-E) in which section the following are found:

1. _____ Solid getting warmer
2. _____ Liquid getting warmer
3. _____ Gas getting warmer
4. _____ Freezing
5. _____ Melting
6. _____ Boiling point
7. _____ Boiling (Vaporization)
8. _____ Particles farthest apart
9. _____ Weakest IMF
10. _____ Particles are rigid & compressed
11. _____ Particles closest together
12. _____ All particles able to move past each other in fluid motion
13. _____ Condensation occurs
14. _____ Strongest IMF
15. _____ Particles cannot change position
16. _____ Particles are most chaotic and disordered
17. Is boiling an exothermic or endothermic process? _____
18. Is freezing an exothermic or endothermic process? _____
19. Is melting an exothermic or endothermic process? _____
20. When heat energy is released from the system, what physical change occurs at D? _____
21. When heat energy is released from the system, what physical change occurs at B? _____
22. When heat energy is added to the system, what physical change occurs at B? _____
23. During which interval(s) is the KE increasing (KE is energy of motion...think, what is the relationship between energy, temperature and motion)? _____
24. During which interval does the substance have the weakest IMF? _____
25. During which interval does the substance have strongest IMF? _____
26. If the particles are not moving faster (temperature is not increasing) during B & D, then what is the energy absorbed for?

Now try to answer these questions for a substance that is NOT water.

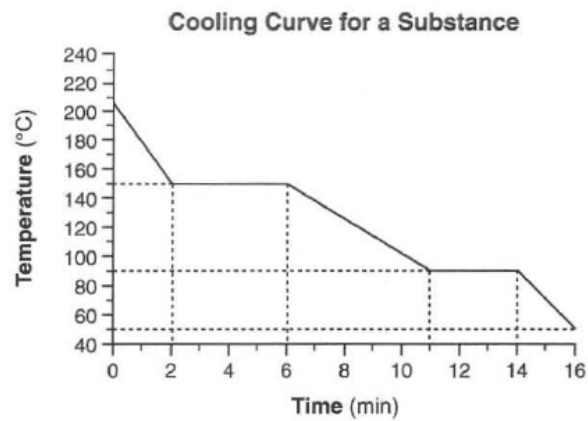


27. What is the normal **melting point temperature** of the substance?

28. What is the normal **boiling point** of the substance?

29. What physical process occurs during interval II in the endothermic direction? _____
30. What physical process occurs during interval IV in the exothermic direction? _____

The following graph represents the *cooling curve* for a substance in the gaseous state that eventually becomes solid as heat energy is released.



31. What is the freezing point of this substance? _____
32. During which time interval is the substance freezing? _____
33. What is the boiling point for this substance? _____
34. During which time interval is the substance condensing? _____

