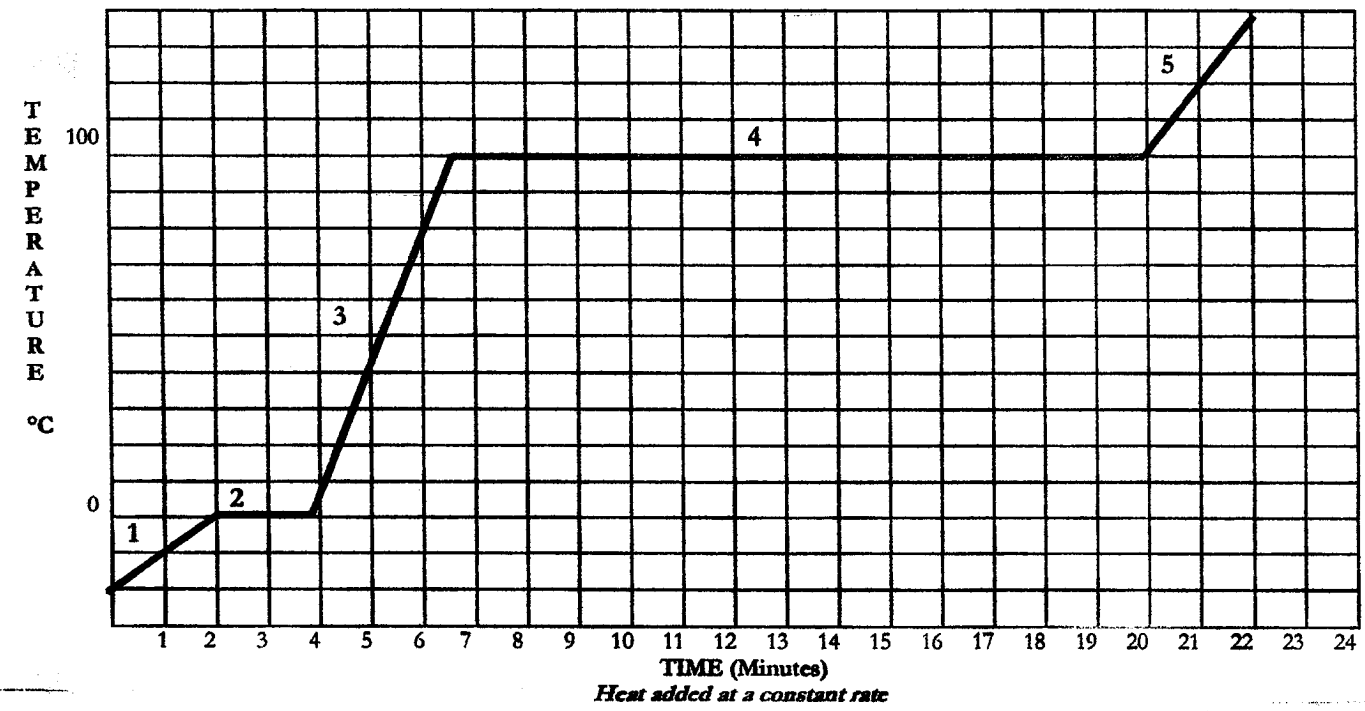
Name _____ Date _____

Heating/Cooling Curves

A. The following graph is a ***heating curve*** showing the ***addition*** of heat at a constant rate of 500.0 joules/minute to a 3.00 gram sample of ice at –20.0°C. The final temperature of the vapor is 140.0°C.



Heat added at a constant rate

Questions

1. During which segments is kinetic energy increasing? _____
2. During which segments does kinetic energy remain the same? _____
3. During which segments is potential energy increasing? _____
4. During which segments does potential energy remain the same? _____
5. During which segments is one phase only present? _____
6. During which segments are two phases present? _____
7. At what time does the liquid phase first appear? _____
8. At what time does the gas phase first appear? _____
9. At what time do the particles have the highest average kinetic energy? _____
10. Phase changes that occur with an absorption of energy are _____thermic.
11. _____ (f_____) and _____ are endothermic phase changes.
12. During which segment could the heat of fusion be determined? _____
13. During which segment could the heat of vaporization be determined? _____
14. How long does it take to completely melt the sample at its melting point? _____
15. How long does it take to completely vaporize the sample at its boiling point? _____
16. During which segment is the substance entirely in the solid state? _____
17. During which segment is the substance entirely in the gas state? _____