

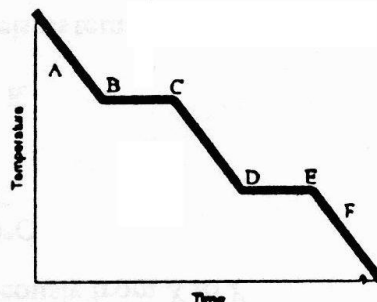
26. The heat of fusion is defined as the energy required at constant temperature to change 1 unit mass of a
- (1) gas to a liquid (3) solid to a gas
 (2) gas to a solid (4) solid to a liquid
27. Which phase change is endothermic?
- (1) gas \rightarrow solid (2) gas \rightarrow liquid (3) liquid \rightarrow solid (4) liquid \rightarrow gas
28. Given the equilibrium at 101.3 kPa:

$$\text{H}_2\text{O}(s) \rightleftharpoons \text{H}_2\text{O}(\ell)$$
 At what temperature does this equilibrium occur?
- (1) 100 K (2) 273 K (3) 298 K (4) 373 K
29. Which change results in a release of energy?
- (1) the melting of $\text{H}_2\text{O}(s)$ (3) the evaporation of $\text{H}_2\text{O}(\ell)$
 (2) the boiling of $\text{H}_2\text{O}(\ell)$ (4) the condensation of $\text{H}_2\text{O}(g)$
30. Which change of phase is exothermic?
- (1) $\text{H}_2\text{O}(s) \rightarrow \text{H}_2\text{O}(g)$ (3) $\text{H}_2\text{S}(g) \rightarrow \text{H}_2\text{S}(\ell)$
 (2) $\text{CO}_2(s) \rightarrow \text{CO}_2(\ell)$ (4) $\text{NH}_3(\ell) \rightarrow \text{NH}_3(g)$
31. Which phase change results in a release of energy?
- (1) $\text{Br}_2(\ell) \rightarrow \text{Br}_2(s)$ (3) $\text{H}_2\text{O}(s) \rightarrow \text{H}_2\text{O}(\ell)$
 (2) $\text{I}_2(s) \rightarrow \text{I}_2(g)$ (4) $\text{NH}_3(\ell) \rightarrow \text{NH}_3(g)$

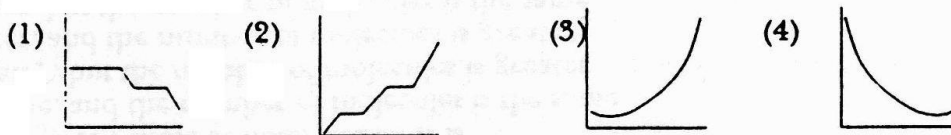
32. The graph at right represents the uniform cooling of a substance, starting with the substance as a gas above its boiling point.

During which interval is the substance completely in the liquid state?

- (1) AB (3) CD
 (2) BC (4) DE



33. Which graph best represents a change of phase from a gas to a solid?



34. How many joules of heat are absorbed when 70.00 grams of water are completely vaporized at its boiling point?
- (1) 1582 (2) 15.82 (3) 15820 (4) 158200
35. What is the total number of joules of heat energy absorbed when 10 grams of water is vaporized at its normal boiling point?
- (1) 33.4 (2) 226.0 (3) 22600 (4) 3340
36. The heat of fusion of a compound is 30.0 joules per gram. What is the number of joules of heat that must be absorbed by a 15.0-gram sample to change the compound from solid to liquid at its melting point?
- (1) 15.0 joules (2) 45.0 joules (3) 150.0 joules (4) 450.0 joules.