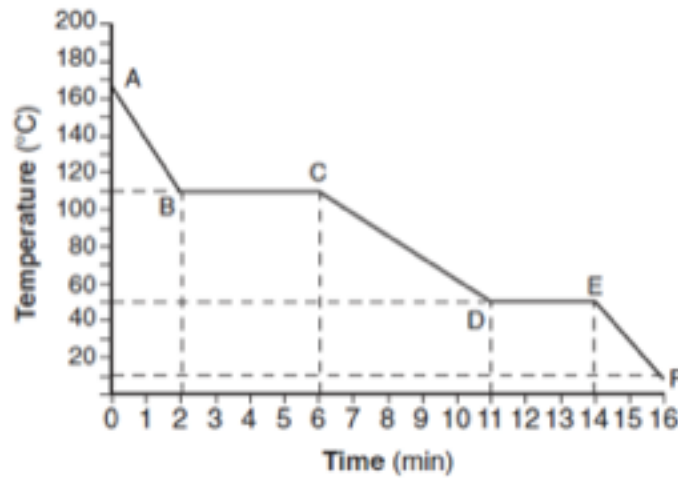
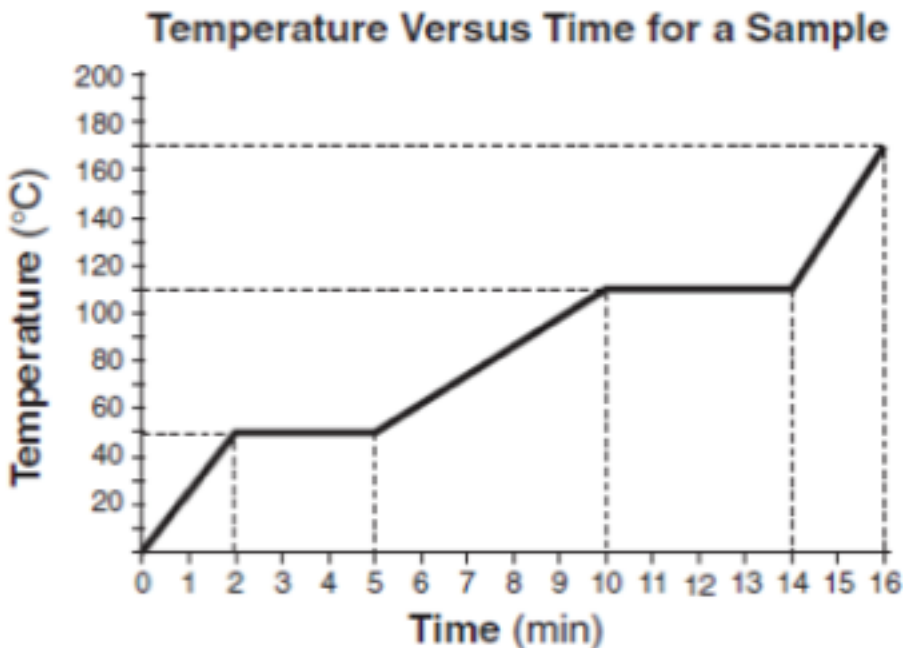


Group 1



1. What is the boiling point of this substance? _____ °C
2. Which line segment (*AB*, *BC*, *CD*, *DE*, *EF*) of the graph represents the liquid phase, only?
3. How long does it take for this sample to change completely from gas to liquid?

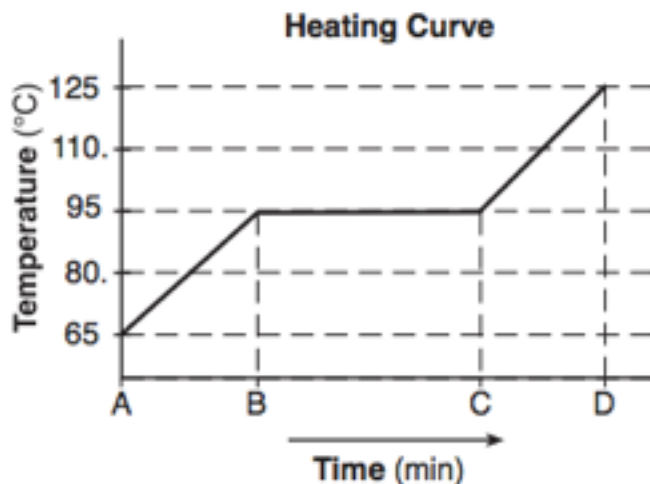


Group 2

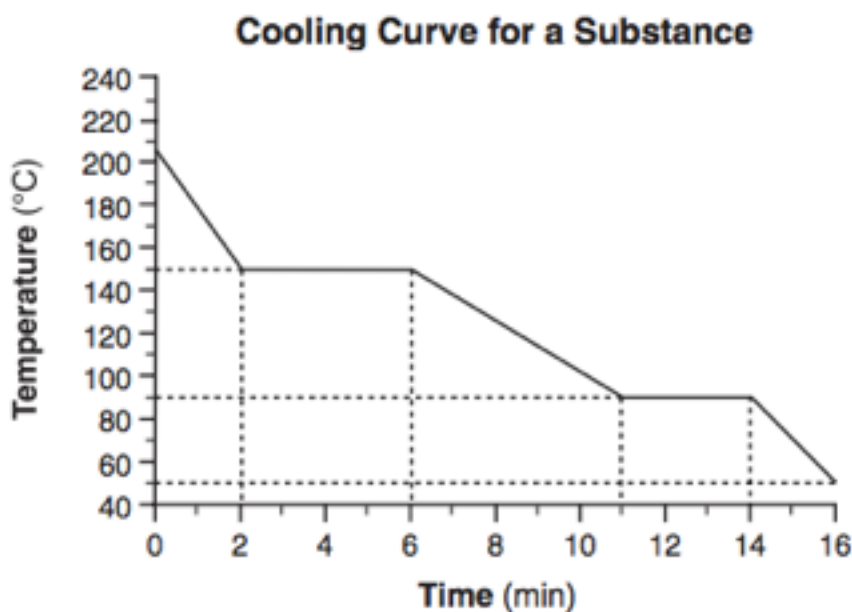
1. What is the melting point of the sample?
2. What is the total time required to completely melt the sample after it has reached its melting point?
3. What is the boiling point of the sample?
4. What is the total time required to completely boil the sample after it has reached its boiling point?

A sample of a substance is a liquid at 65°C . The sample is heated uniformly to 125°C . The heating curve for the sample at standard pressure is shown below.

Group 3



1. Determine the boiling point of the sample at standard pressure. [1]
2. State what happens to the potential energy of the particles of the sample during time interval BC. [1]

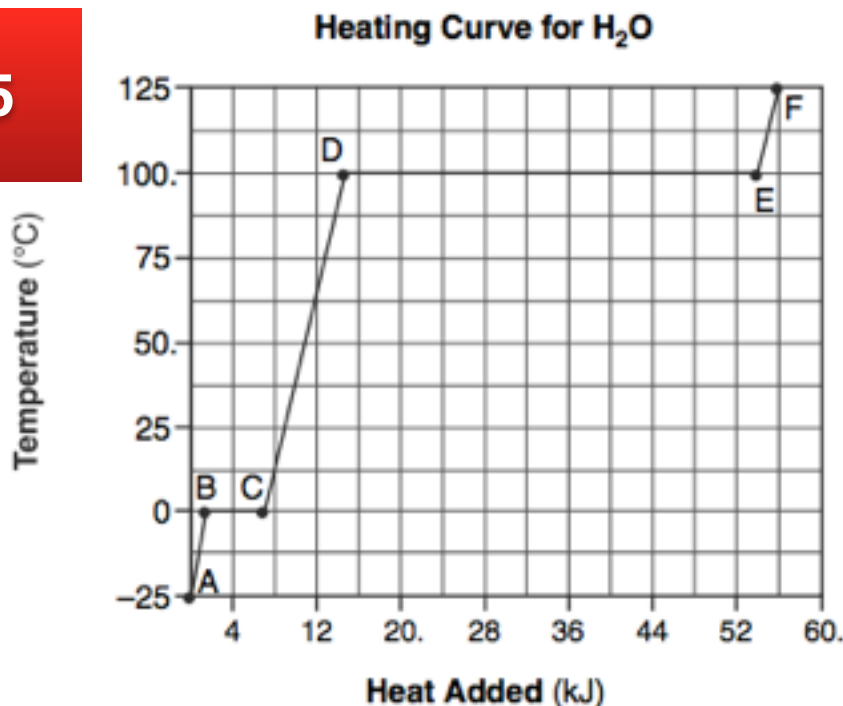


Group 4

1. What is the melting point of this substance? [1]
2. At what time do the particles of this sample have the *lowest* average kinetic energy? [1]
3. Using the key in *your answer booklet*, draw *two* particle diagrams to represent the *two* phases of the sample at minute 4. Your response must include *at least six* particles for *each* diagram. [1]

Starting as a solid at -25°C , a sample of H_2O is heated at a constant rate until the sample is at 125°C . This heating occurs at standard pressure. The graph below represents the relationship between temperature and heat added to the sample.

Group 5



- Describe what happens to *both* the potential energy and the average kinetic energy of the molecules in the H_2O sample during interval AB . [1]
- Using the graph, determine the total amount of heat added to the sample during interval CD . [1]
- Explain, in terms of heat of fusion and heat of vaporization, why the heat added during interval DE is greater than the heat added during interval BC for this sample of water. [1]

Group 6

A substance is a solid at 15 degrees Celsius. A student heated a sample of the solid substance and recorded the temperature at one-minute intervals in the data table below.

Time (min)	0	1	2	3	4	5	6	7	8	9	10	11	12
Temperature ($^{\circ}\text{C}$)	15	32	46	53	53	53	53	53	53	53	53	60	65

- Based on the data table, what is the melting point of the substance? [1] _____
- What is the evidence that the average kinetic of the particles of this substance is increasing during the first three minutes? [1]