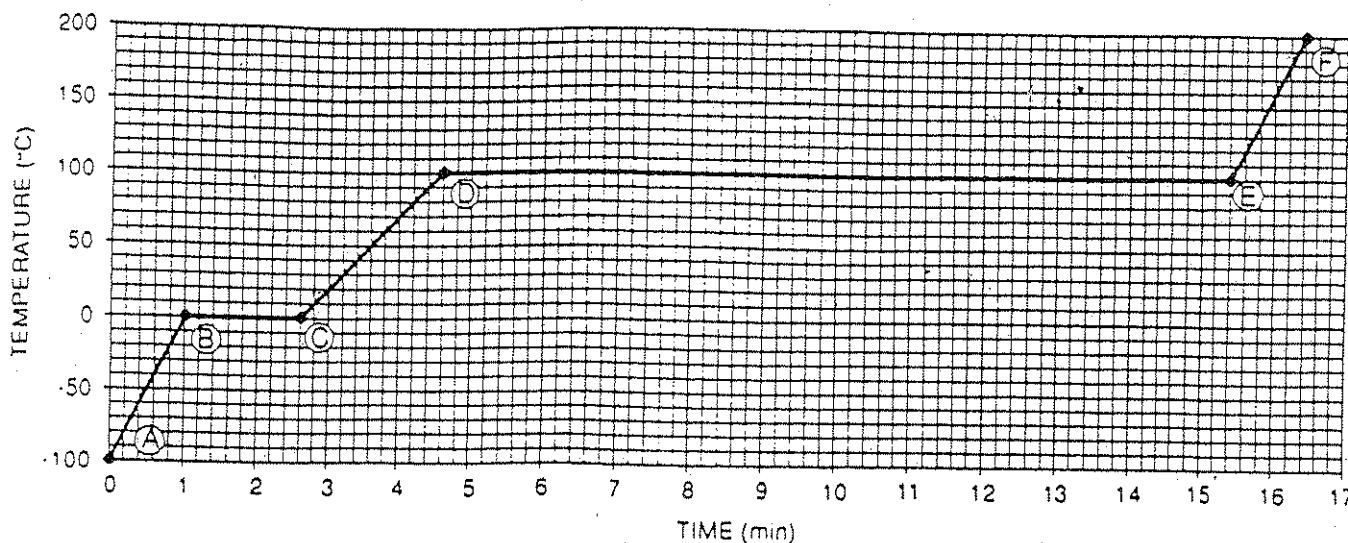Conversion: 1 calorie = 4.18 Joules
Heat of Fusion: 80 cal/gram
Heat of Vaporization: 540 cal/gram

Name _____

note: energy is being added to 50 grams of water at a constant rate. the graph shows the temperatures recorded when a sample of water was heated for almost 17 minutes.

Calculate the energy required to go through each step for the graph. show your work!

A TO B	_____
B TO C	_____
C TO D	_____
D TO E	_____
E TO F	_____

TOTAL JOULES _____

1. For the time on the graph represented by the line from point B to point C, the water was
   (1) freezing   (2) melting   (3) condensing   (4) boiling

2. At which point in time would most of the water be in the liquid phase?
   (1) 1 minute   (2) 14 minutes   (3) 16 minutes   (4) 4 minutes

3. How many calories were required to change 10.0 grams of water at point D to water vapor at point E?   (1) 500 calories   (2) 800 calories   (3) 1,000 calories   (4) 5,400 calories

4. The greatest amount of energy was absorbed by the water between points
   (1) A and B   (2) B and C   (3) C and D   (4) D and E

5. What is the rate of temperature change between C and D?
   (1) 10C°/min   (2) 25C°/min   (3) 50C°/min   (4) 150C°/min

6. Which two letters have the same K.E.?
   (1) C and D   (2) B and C   (3) E and F   (4) A and C

7. What is the for of the substance at time 2 minutes?
   (1) solid   (2) liquid and gas   (3) liquid   (4) liquid and solid