Phases Practice Celebration (number 2) Practice
Put all answers on the answer sheet. Staple answers on top of the questions.

1. The phase of water with the lowest kinetic energy is: solid liquid gas

2. On a heating curve for water, during the cold phase change, which of these best describes what is happening?
   A. Temperature decreases, kinetic energy decreases, potential energy is steady
   B. Temperature steady, kinetic energy steady, potential energy rises
   C. Temperature decreases, kinetic energy increases, potential energy steady
   D. Temperature steady, kinetic energy decreases, potential energy rises

3. Normal pressure could be described as:
   A. 101.3 atm B. 101.3 kPa C. 101.3 mm of Hg D. all of the above

4. Convert 190.5 kPa into mm of mercury.

5. Convert 190.5 kPa into atmospheres.

6. On a phase diagram, the triple point is best described as:
   A. all of the three points that the substance exists in all phases
   B. the only point that the substance exists in all three phases
   C. the only three points that the substance has no phase
   D. the point that liquid and gas are in dynamic equilibrium and solid cannot exist

7. The normal freezing point for water is best described as:
   A. 0°C and 101.3 kPa B. 0°C and 0 kPa
   C. 100°C and 100 kPa D. 100°C and 101.3 kPa

8. Convert 131 kPa to atmospheres.

9. Convert 402 mm Hg to kPa.

10. Which pair of phases changes occur across the same line on a phase diagram?
    A. boiling and condensing B. condensing and freezing
    C. deposition and melting D. melting and boiling

11. Which of the four liquids on Table H has the lowest vapor pressure at 75.0°C?

12. At normal pressure, which of the four liquids on table H has the highest boiling point?

13. Haha, deep breath, breath out now. Exhalation contains CO_2 and H_2O (both gases).

14. How can we make water boil at a temperature so cold that it's still cold?
    A. we can't, it's impossible B. increase the pressure dramatically
    C. decrease the pressure dramatically D. boiling water is cold by definition

15. Which phase of matter and relative kinetic energy level are paired correctly here?
    A. gas: low KE B. liquid: low KE C. solid: low KE

16. The particles of a solid have:
    A. strong intermolecular forces
    B. weak intermolecular forces
    C. move very fast, making them invisible
    D. move in random directions

17. Which is best describing the difference between boiling and evaporation?
    A. boiling happens at the surface only, while evaporation happens throughout
    B. evaporation happens only at surface, boiling happens
    C. boiling happens throughout liquid, it happens ONLY at STP
    D. evaporation happens throughout liquid, happens only at the normal boiling point

18. What phase is ethanoic acid at 101.3 kPa and 100ºC? solid liquid gas

19. What phase is ethanol at normal pressure and 25ºC?

20. At 50 kPa, how many of the four liquids on table H can boil?

21. What phase in ethanoic acid at 105 kPa and 122ºC?

22. During the cooling curve graph of lauric acid from our lab, at about 44ºC, the graph flattened out for quite a while. The temperature was steady. Why?
    A. The classroom was 44ºC and it was hard to cool lower than room temperature
    B. The hot phase change occurred, lauric acid changed from a gas to a liquid
    C. Vestal thermometers always get stuck at 44ºC because they are of fairly low quality
    D. The cold phase change happened at 44ºC, which is the freezing point of lauric acid

23. If at a point of a heating curve graph the potential energy is rising, the kinetic energy is steady, and the temperature is steady, this point could be:
    A. liquid only phase as the liquid is warming up
    B. solid only phase, as the solid is warming up towards the melting point
    C. gas to liquid phase, as the gas cools to a liquid
    D. hot phase change where all energy is being used to separate the liquid molecules from each other

24. On the heating curve for water on the answer sheet, at segment DE, what happens?
    A. cold phase change, solid to liquid
    B. hot phase change, liquid to gas
    C. kinetic energy and temperature rise
    D. potential energy and temperature rise

25. By lowering the pressure sufficiently in the bell jar water boiled at a temperature we measured in class. Would spaghetti take longer or less time to cook under very low pressure?
    A. same time, boiling is boiling
    B. longer time, it boils at a lower temperature than normal
    C. shorter time, it boils at a higher temperature than normal
    D. since we didn't put the spaghetti into the bell jar, we can't possibly know this

26. Convert the normal boiling point temperature of MERCURY into centigrade degrees.

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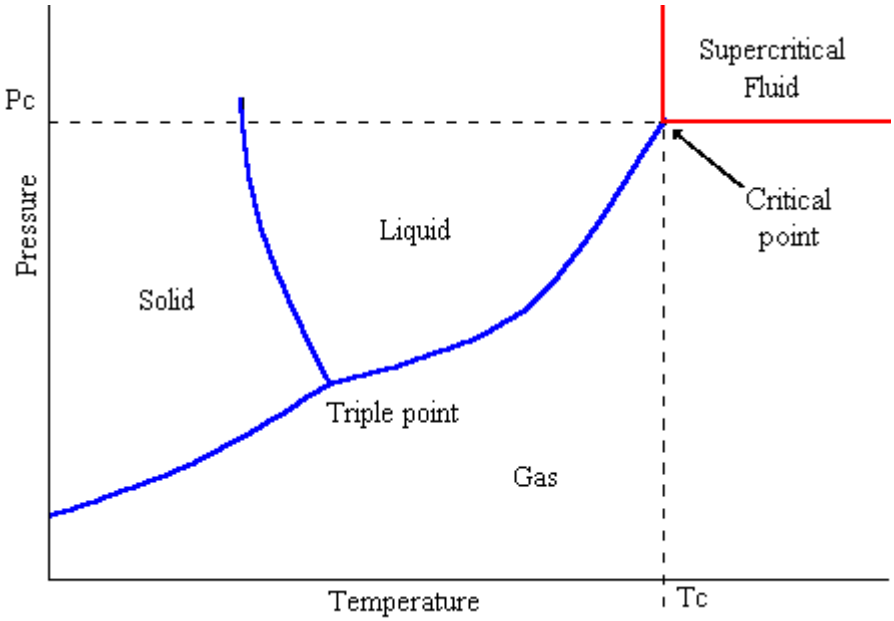
YOUR NAME: _____

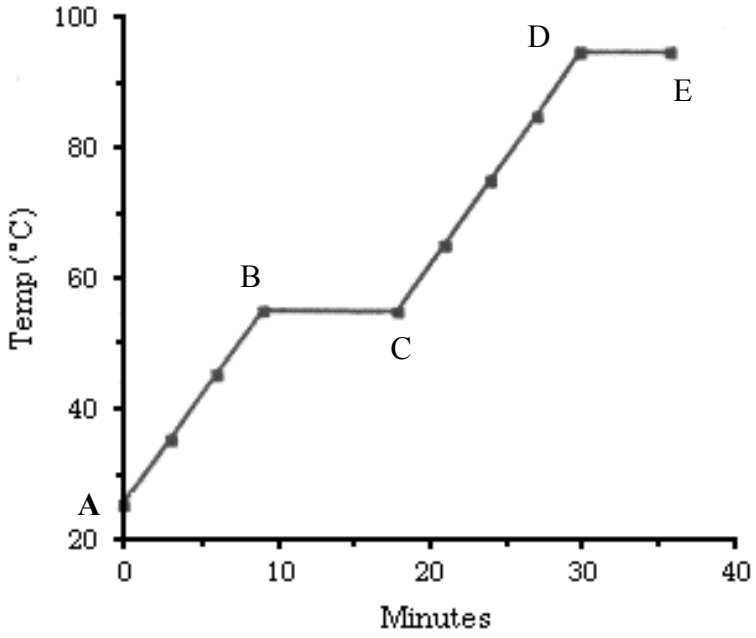
PHASES CELEBRATION

VERSION: _____ (solid or liquid)

All answers go on the left, write out the word or the choice that best answers each question. 25 questions x 4 points each = 100 points

Below is an example of the phase diagram and a heating curve for a unknown substances. Use them for reference.





ANSWERS

solid	1
B	2
B	3
1429 mmHg	4
1.881 atm	5
B	6
A	7
1.29 atm	8
53.6 kPa	9
A	10
ethanoic acid	11
ethanoic acid	12
☺☺ ☺ ☺☺	
C	14
C	5
A	16
B	17
liquid	18
liquid	19
4 (all)	20
gas	21
D	22
D	23
B	24
B	25
357°C	26