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# Phases Practice Celebration

name \_\_\_\_\_

Units, SF all count!

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28 Define vapor pressure

29 What is the vapor pressure of water in a closed container at 25°C, and describe what would happen if you continue to heat this water up to higher temperatures?

30 On a heating curve, why is the “lower” flat line shorter than the “higher” flat line?

31 State the Law of Conservation of Matter

32 State the Law of Conservation of Energy

33 Which phase has the highest potential energy? \_\_\_\_\_

34 What is going on at the critical point of the water phase diagram?

50 Point Practice Phases Celebration Fill in the blank, or multiple choice.

- 1 What phase is propanone at 25°C and 20 kPa?
- 2 What is the boiling point of water at 120 kPa?
- 3 What phase change occurs at 90°C and 40 kPa?
- 4 What is the normal boiling point of ethanol?
- 5 The phase change from solid to gas is A. deposition B. sublimation C. melting D. freezing
- 6 If you had two identical corked flasks with 200. mL each of water and ethanol, and you started heating them exactly the same, at the same time, what would happen? Both would warm up and...
  - A. both should explode at the same time.
  - B. the water flask should explode first.
  - C. the ethanol flask should explode first.
  - D. neither would ever explode.

Draw a small cooling curve, label the ends of the line segments left to right, A B C D E and F

- 7 From B to C, what happens to KE?
- 8 From D to E, what happens to PE?
- 9 From C to D, what happens to KE?
- 10 From A to B, what happens to PE?



Draw a small heating curve, label the ends of the line segments left to right, A B C D E and F

- 11 From A to B, what happens to KE?
- 12 From C to D, what happens to PE?
- 13 Skip this one!
- 14 From D to E, what happens to KE?



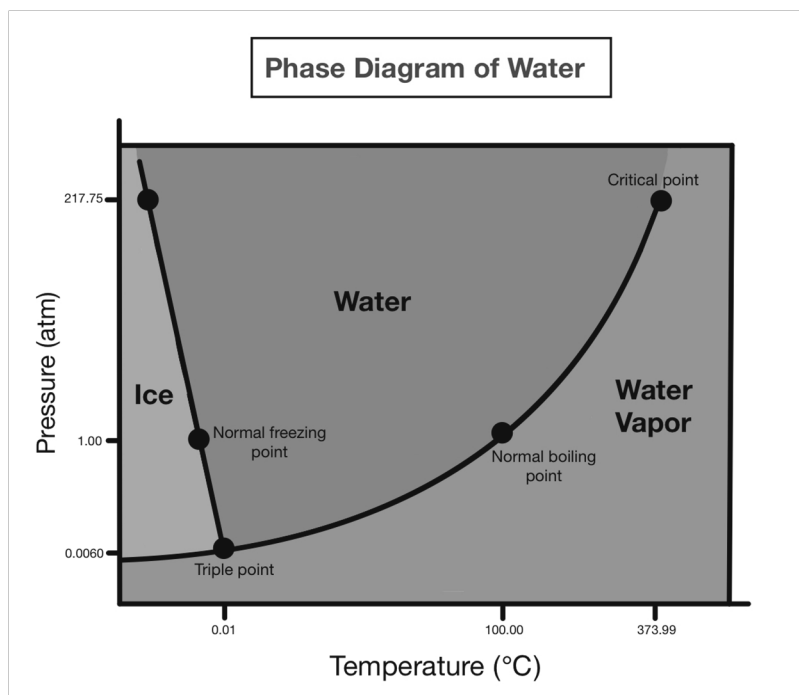
- 15 Convert the boiling point of sodium into centigrade.
- 16 Convert room temperature of 22.0°C into Kelvin
- 17 On a phase diagram, water boils at 100°C, or the normal boiling point? What's the normal part mean?
- 18 What temperature is the "normal melting point"?

19 Which list has the three phases in highest potential energy to lowest?

- A. S—L—G
- B. L—G—S
- C. G—S—L
- D. G—L—S

20 Moving from ice to gas vapor at right, Which best explains the change in potential energy?

- A. PE increases
- B. PE is constant
- C. PE decreases
- D. This cannot be determined without a temperature



21 On a cooling curve, moving from C to D, which is true?

- A. PE increases, KE increases
- B. PE steady, KE decreases
- C. PE steady, KE increases
- D. PE decreases, KE increases

22 When the temperature changes (on a heating or cooling curve)

- A. The PE changes opposite
- B. The PE changes the same way
- C. The KE increases
- D. The KE changes in the same way

23 At what pressure does  $\text{H}_2\text{O}_{(G)} \rightarrow \text{H}_2\text{O}_{(L)}$  happen at 70°C?

24 What phase or phases of water are present at the triple point? Use letters for S, L or G

25 Convert 345 kPa to atmospheres

26 Convert 1.450 atm to mm Hg

27 Convert 90.3 psi to kPa