

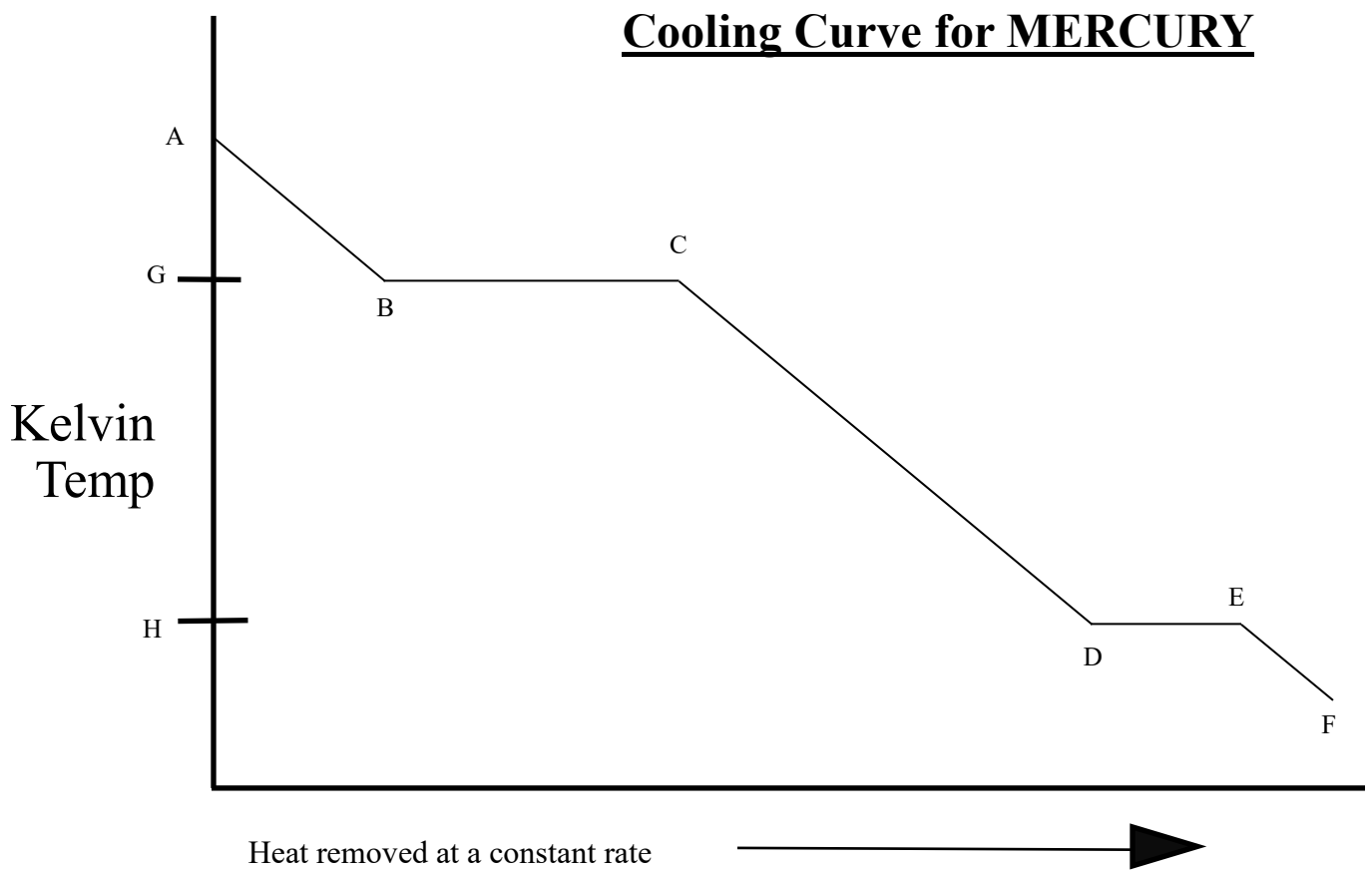
Practice Test Phases 2022

1. What are the values of STP - 2 different units each?
2. If you have 4 identical bottles, corked, of the four liquids in Table H, which has the lowest vapor pressure at any given temperature?
3. If you have these same 4 bottles on one hot plate that increases the temperature by 2 degrees centigrade per minute, which bottle will explode first?
4. A gas is at the pressure of 6.25 atmospheres. What is that pressure in kPa?
5. 1635 mm Hg of pressure converted to kPa is equal to how many kilopascals?
6. Convert 3.60 atm into millimeters of mercury
7. Which grouping of the three phases of bromine is listed in order from left to right for decreasing distance between bromine molecules?
A. gas, liquid, solid B. liquid, solid, gas C. solid, gas, liquid D. solid, liquid, gas
8. In Vestal NY the boiling point of water is higher than on Mt. Everest, because
A. a different thermometer scales are used there B. higher air pressures exists here
C. a different kind of water is found in Nepal D. lower air pressures exists here
9. Inside a closed container, when the molecules of a solid change to liquid, and then the liquid becomes gas again, it is said that the liquid and solid reaches something called the
A. Dynamic Equilibrium ("DE") B. Normalcy ("N")
C. Sliquid ("Sliq") D. Liquid - Solid Balance ("LS Bal")
10. As the temperature of a liquid decreases, its vapor pressure
A. stays the same B. decreases C. Increases (no choice D here)
11. What is the boiling point of water at 120 kPa?
12. As the pressure on the surface of a liquid increases, the temperature at which the liquid will boil is
Higher, Lower, or the Same
13. Skip
14. In a deep cave the air pressure is higher because it is below sea level.
At what approximate temperature would you expect water to boil?

15. The coldest any liquid could be is the freezing point temperature. True or False?
16. Which of these four statements is correct? As the temperature
- A. decreases, kinetic energy increases
 - B. increases, kinetic energy increases
 - C. decreases, kinetic energy remains steady
 - D. increases, kinetic energy remains steady
17. Given the equation $\text{H}_2\text{O}_{(\text{L})} \rightleftharpoons \text{H}_2\text{O}_{(\text{G})}$
At which temperature will this dynamic equilibrium exist when the atmospheric pressure is 101.3 kPa?
18. In which material are the particles arranged in a regular geometric pattern?
Solids, liquids, gases, or AQ solutions?
19. The average kinetic energy of water molecules undergoing a phase change from solid to liquid is
decreasing, increasing, or, remaining constant
20. Which statement best explains why confined gas exerts pressure? The molecules of a gas
- A. are in random, straight line motion
 - B. have only elastic collisions
 - C. are not attracted or repelled by one another
 - D. are having collisions with the container walls
21. Which correctly describes a sample of liquid in a sealed container?
- A. it always has a definite volume, and takes the shape of the container
 - B. it takes the shape and the whole volume of any container in which it is confined
 - C. it has a crystalline structure
 - D. it consists of particles arranged in a regular geometric pattern
22. Which equation represents deposition?
- A. $\text{I}_2(\text{s}) \rightarrow \text{I}_2(\text{g})$
 - B. $\text{I}_2(\text{l}) \rightarrow \text{I}_2(\text{g})$
 - C. $\text{I}_2(\text{g}) \rightarrow \text{I}_2(\text{s})$
 - D. $\text{I}_2(\text{l}) \rightarrow \text{I}_2(\text{s})$
23. What is the vapor pressure of ethanol at 90°C?

Keep going...

24. On the cooling curve, which describes what happens when moving from C to D?
25. On the cooling curve, which describes what happens when moving from B to C?
26. On the cooling curve, which describes what happens when moving from D to F?
27. What temperature is the freezing point for this substance? (fill in)
28. What is the H and G represent?
29. What is the temperature change from H to G for this substance?



Phases Practice Test KEY

1	101.3 kPa and 273 K	1 atm and 0°C
2	Lowest is ethanoic acid, it evaporates the worst, it has the strongest intermolecular attractions holding it together.	
3	The one with propanone, it has the highest Vapor pressure, which means it will evaporate the best (attract to itself the least) of the four.	
4	633 kPa (3 SF)	
5	217.9 kPa (4 SF)	
6	2740 mm Hg (3 SF)	
7	A. Gas, liquid solid—furthest apart, medium, then closest packed together	
8	B. Vestal has higher air pressure, more of the atmosphere pressing down upon us, making the BP higher. Takes more energy to escape as a gas.	
9	A. If you hold a phase change it's called dynamic equilibrium, always changing but staying the same. Changing but stable.	
10	B. Decreases. Temp and vapor pressure are directly proportional. Colder = Less evaporation = Less gas = Less collisions = Less pressure	
11	105°C Table H	
12	Higher. More pressure "downwards" requires more energy from below to push into the gas phase.	
13	Skip	
14	Any temp OVER 373 K or 100°C , don't go crazy. Under 105°C is likely.	
15	TRUE. Freezing = Melting temperature. That's the hottest a solid could be, and the coldest a liquid could be too.	

Phases Practice Test KEY

16	B. Temp and Kinetic Energy do the "same thing". They increase or decrease together, or stay steady together.
17	The L → G equilibrium at normal pressure is 100°C or 373 Kelvin.
18	Regular geometric patterns are SOLIDS only.
19	Phase changes are ONE temp, which means KE is steady too (see #15)
20	D. Collisions cause pressure.
21	A. Liquids have definite volume (can't be squished) but take the shape of the bottom of any container you put them into.
22	C. Deposition is gas to solid.
23	Table H, 150 kPa
24	Here, CD represents Liquid to Liquid, so cooling of a liquid only.
25	Here, BC is the condensation of a gas to the liquid phase.
26	Here, DF is a liquid freezes D to E, then the solid gets colder.
27	"H" is the freezing point, and it's mercury, so 234 Kelvin
28	G is the Condensation point (or BP = 630. K) H is the Freezing point (or MP = 234 K)
29	630. K — 234 K = 396 Kelvin