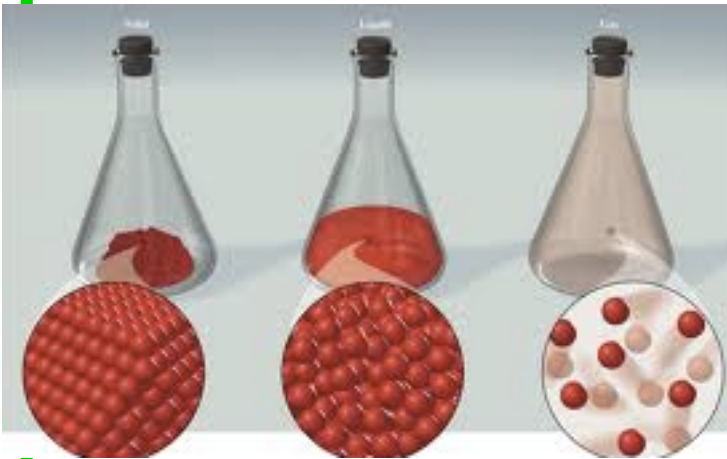


Test: Phases of Matter

A unit test on “Phases of Matter”



- Temperature Scales
- Conversions between units of pressure
- Gas pressure problems
- Phases of matter and phase changes
- Heating curves
- Kinetic theory
- Multiple Choice, Fill in the blank, calculations

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Preview: This preview is a sample of the questions on this test.

1. A temperature scale that uses absolute zero as its starting point is the:
(a) Kelvin scale (b) Celsius scale (c) Fahrenheit scale (d) Newton scale.
6. Which one of the following is not true according to the kinetic theory of matter?
(a) There is no attraction between particles of a gas. (b) There is a tremendous attraction between the particles of a solid. (c) Only particles of matter in the gas phase are in constant motion. (d) The particles of a gas collide with each other and with other objects.
10. What happens to the boiling point of a liquid if the pressure exerted on its surface is reduced?
18. What is the lowest possible temperature in degrees Celsius?

SOLVE THE PROBLEMS BELOW AS INDICATED

24. $23\text{ }^{\circ}\text{C} = \text{_____ K}$ 27. $180\text{ }^{\circ}\text{C} = \text{_____ K}$

USE THE HEATING CURVE BELOW TO ANSWER QUESTIONS 30 - 39

Diagram of heating curve will be inserted here.

30. What phase(s) of matter are represented at letter A?
37. At letter B, what is happening to the energy being supplied to the substance?

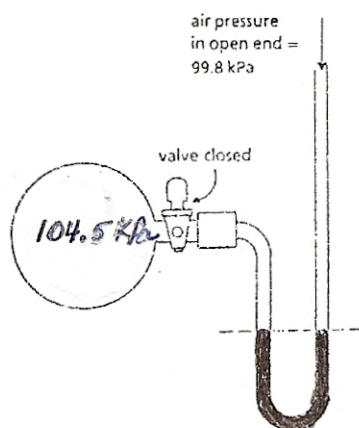
Convert the following:

40. Convert 840 mm Hg to atmospheres.

44. An open ended manometer is attached to a container of gas that is exerting a pressure of 104.5 kPa. See diagram below. The atmospheric pressure is 99.8 kPa.

When the valve is opened, will the mercury in the open arm of the tube move up or down?

After the mercury stops moving, what will be the difference in height of the mercury levels in the two arms of the tube?



Answers:

1. 1
2. 3
3. 3
4. 1
5. 4
6. 3
7. 2
8. melting point
9. freezing point
10. the boiling point lowers
11. they are the same
12. a celsius degree is larger
13. 0 °C
14. 100 °C
15. 273 K
16. 373 K
17. 0 K
18. -273 °C
19. the temperature at which molecular energy is at a minimum
20. the ones with the most energy
21. barometer
22. air pressure
23. allotropes
24. 296 K
25. 267 °C
26. 253 K
27. 453 K
28. 4727 °C
29. -127 °C
30. solid
31. solid and liquid
32. liquid
33. liquid and gas
34. 0 °C
35. 100 °C
36. the energy is being used to raise the temperature
37. the energy is being used to change the phase
38. none
39. The line would stay the same until all of the liquid had evaporated, then the temperature would rise.

$$40. \frac{840 \text{ mmHg}}{760 \text{ mmHg}} \times 1 \text{ atm} = 1.11 \text{ atm}$$

$$41. \quad \frac{840 \text{ mmHg}}{760 \text{ mmHg}} \times \frac{101.3 \text{ kPa}}{1} = 111.96 \text{ kPa}$$

$$42. \quad \frac{146,232 \text{ Pa}}{1000 \text{ Pa}} \times \frac{1 \text{ kPa}}{1} \times \frac{760 \text{ mmHg}}{101.3 \text{ kPa}} = 1097.1 \text{ mmHg}$$

$$43. \quad \frac{1 \text{ kPa}}{101.3 \text{ kPa}} \times \frac{760 \text{ mmHg}}{1} = 7.5 \text{ mmHg}$$

44. UP

$$104.5 - 99.8 \text{ kPa} = 4.7 \text{ kPa}$$

$$\frac{4.7 \text{ kPa}}{101.3 \text{ kPa}} \times \frac{760 \text{ mmHg}}{1} = 35.26 \text{ mmHg}$$

$$45. \quad 102 \text{ kPa} + \frac{30 \text{ mmHg}}{760 \text{ mmHg}} \times \frac{101.3 \text{ kPa}}{1}$$

$$102 \text{ kPa} + 4 \text{ kPa} = 106 \text{ kPa}$$

46. 2

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[Phases of Matter Test](#)