

Name _____

Answer the following questions. Be sure to list your variables and draw an arrow to represent your prediction for the answer!

1. The pressure of a sample of helium in a 4.25 L container is at .93 atm. What is the new pressure, in kPa, if the sample is placed in a 600 mL container?
2. What is the volume of the air in a balloon that occupies 2.40 L at 91°C if the temperature is lowered to -11°C?
3. A rigid plastic container holds 0.30 L methane gas at 935 torr pressure when the temperature is 27.0°C. How much pressure will the gas exert if the temperature is raised to 79.3°C?
4. What is the volume of the air in a balloon that occupies 0.840 L at 29°C if the temperature is lowered to -31°C?
5. Some oxygen occupies 250 mL when its pressure is 720 mm Hg. How many milliliters will it occupy when its pressure is 750 mm Hg?

6. Given 100 mL of gas measured at 17 degrees Celsius and 300 torr pressure, what volume (in milliliters) will the gas occupy at 37 degrees Celsius and 500 torr?

7. A gas occupies 500 mL at a temperature of -23 degrees Celsius. What will be the volume at 23 degrees Celsius?

8. Find the final temperature of a sample that starts at 910 torr and changes to 800 torr, if the initial temperature is 0 degree Celsius.

9. How many moles would a sample have if its temperature is 130 degrees Celsius, its pressure is 1.5 atm, and its volume is 220 mL?

10. A 68mL sample of fluorine is collected over water at 23 degrees Celsius and 720 torr pressure. What is the volume of the dry gas at STP? (Vapor pressure of water at 23 degrees Celsius = 21.2 torr)

11. A weather balloon contains 14.0 L of helium at a pressure of 95.5 kPa and a temperature of 12.0 degrees Celsius. If this had been stored in a 1.50 L cylinder at 21.0 degrees Celsius, what must the pressure be inside the cylinder?

12. When a sample of a gas was placed in a sealed container with a volume of 3.35 L and heated to 105 degrees Celsius, the gas vaporized and the resulting pressure inside the container was 170.0 kPa. How many moles of the gas was present?

13. If the gas pressure in an aerosol can is 148.5 kPa at 23 degrees Celsius, what is the pressure inside the can if it is heated to 298 degrees Celsius?

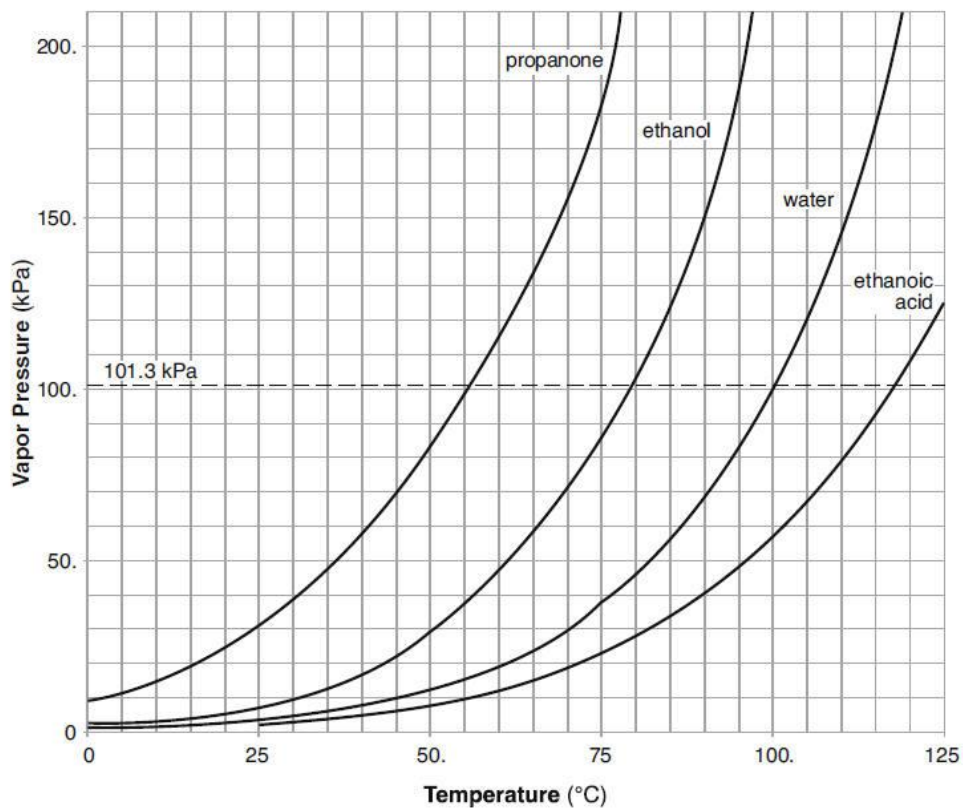
14. A 50.0 mL sample of gas is cooled from 119 degrees Celsius to 80 degrees Celsius. If the pressure remains constant, what is the final volume of the gas?

15. If 5.80 L of gas is collected at a pressure of 92.0 kPa, what volume will the same gas occupy at 101.3 kPa if the temperature stays constant?

16. Matching Vocabulary

_____ Diffusion	a) A substance that meets all of the assumptions of the KMT
_____ Expansion	b) The process by which a gas escapes a tiny opening due to pressure
_____ KMT	c) The process of a gas flowing from high concentration to lower concentration
_____ Effusion	d) theory that states gases move rapid and randomly and have elastic collisions
_____ Volatile	e) the ability for a particles to move past one another due to lack of attractions
_____ Fluidity	f) a substance that has low intermolecular forces
_____ Ideal Gas	g) the ability for a gas to spread out

Table H
Vapor Pressure of Four Liquids



Use table H for the questions below.

- Which gas is the most volatile?
- Which gas is the least volatile?
- Which gas has the weakest intermolecular forces?
- What is the normal boiling point for a) propanone? b) ethanol?