

Combined Gas Law-

Examples:

1. A helium-filled balloon has a volume of 50.0L at 25°C and 1.08 atm. What volume will it have at 0.855 atm and 10. °C?

List all variables. *Convert temp to K	Write the formula of the appropriate Gas Law Plug & Chug	Final Answer
Known:		
Unknown:		

2. The volume of a gas is 27.5mL and is at 22.0°C and 150,000Pa. What will the temperature be at 120,000 Pa and 30.4mL?

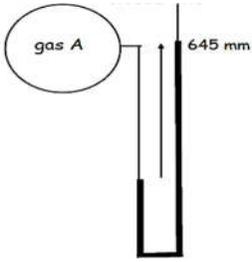
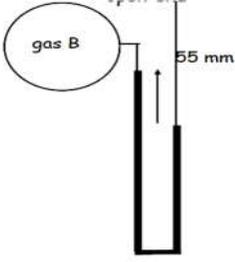
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Known:		
Unknown:		

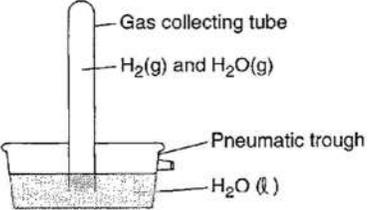
3. A 700.mL sample at STP is compressed to a volume of 200.mL, and the temperature is increased to 30.0 °C. What is the new pressure of the gas in atm?

List all variables. *Convert temp to K	Write the formula of the appropriate Gas Law Plug & Chug	Final Answer
Known:		
Unknown:		

Gases Practice

For the following problems, you must identify the gas law associated with each problem (if applicable) and explain your answer choice/show your work.

Question and Answer	Explanation/Work
<p>1. Which kelvin temperature is equal to 56°C?</p> <p>A. -329 K C. 217 K B. -217 K D. 329 K</p>	
<p>2. Determine the gas pressure inside each bulb. Assume the atmospheric pressure is 755 mm Hg.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>gas A</p> <p>645 mm</p> </div> <div style="text-align: center;">  <p>gas B</p> <p>55 mm</p> </div> </div>	
<p>3. A student measured the pressure of the gas contained in a tank at 646 mm Hg. What is this pressure in atmospheres?</p> <p>A. 0.85 atm B. 1 atm C. 1.2 atm D. 646 atm</p>	
<p>4. A sample of chlorine gas is at 300. K and 1.00 atmosphere. At which temperature and pressure would the sample behave more like an <i>ideal gas</i>?</p> <p>A. 0 K and 1.00 atm B. 150. K and 0.50 atm C. 273 K and 1.00 atm D. 600. K and 0.50 atm</p>	
<p>5. A tank contains equal molar quantities of He, Ne, Ar, and Kr. If a tiny valve is opened, which gas will escape from the tank the fastest?</p> <p>A. He B. Ne C. Ar D. Kr</p>	
<p>6. What is the total pressure exerted by a mixture containing two gases if the partial pressure of one gas is 70 torr and the partial pressure of the other gas is 30 torr?</p> <p>A. 30 torr B. 40 torr C. 70 torr D. 100 torr</p>	

Question and Answer	Explanation/Work
<p>7. A mixture of oxygen, nitrogen, and hydrogen gases exerts a total pressure of 740 mm Hg at 0°C. The partial pressure of the oxygen is 200 mm Hg and the partial pressure of the nitrogen is 400 mm Hg. What is the partial pressure of the hydrogen gas in this mixture?</p> <p>A. 140 mm Hg B. 200 mm Hg C. 400 mm Hg D. 740 mm Hg</p>	
<p>8. The diagram given shows the collection of H₂ gas over water at 25°C. The total pressure in the tube is 760.0 torr. What is the pressure exerted by the hydrogen gas alone? The vapor pressure of water at 25°C is 23.8 torr.</p>  <p>A. 23.8 torr B. 736.2 torr C. 760.0 torr D. 793.8 torr</p>	
<p>9. A rigid cylinder contains a sample of gas at STP. What is the pressure of this gas after the sample is heated to 410 K?</p> <p>A. 1.0 atm B. 0.50 atm C. 0.67 atm D. 1.5 atm</p>	
<p>10. The volume of a sample of a gas at 273°C is 200 liters. If the volume is decreased to 100 liters at constant pressure, what will be the new temperature of the gas?</p> <p>A. 0 K B. 100. K C. 273 K D. 546 K</p>	

Question and Answer	Explanation/Work
<p>11. A 2.5-liter sample of a gas is at STP. When the temperature is raised to 273°C and the pressure remains constant, the new volume of the gas will be</p> <p>A. 1.25 L B. 2.5 L C. 5.0 L D. 10. L</p>	
<p>12. A gas at STP has a volume of 1.0 liter. If the pressure is doubled and the temperature remains constant, the new volume of the gas will be</p> <p>A. 0.25 L B. 2.0 L C. 0.50 L D. 4.0 L</p>	
<p>13. At 25°C, gas in a rigid cylinder with a movable piston has a volume of 145 mL and a pressure of 125 kPa. Then the gas is compressed to a volume of 80 mL. What is the new pressure of the gas if the temperature is held at 25°C?</p> <p>A. 69 kPa B. 93 kPa C. 160 kPa D. 230 kPa</p>	
<p>14. A gas occupies a volume of 500. milliliters at a pressure of 380. torr and a temperature of 298 K. At what temperature will the gas occupy a volume of 250. milliliters and have a pressure of 760. torr?</p> <p>A. 149 K B. 298 K C. 447 K D. 596 K</p>	