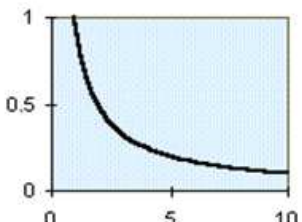
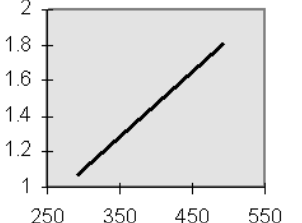
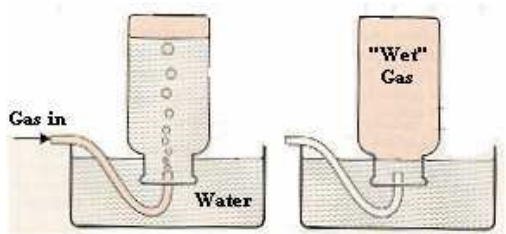


Properties of Gases Test Review Sheet

1.	<p>What would be a reasonable value for the pressure in our chem. lab at North?</p> <p>(A) 100 torr (B) 750 torr (C) 1.5 lb/in² (D) 750 kPa</p>	B	6.	<p>A balloon contains 750 mL of nitrogen at 760. torr. To change the volume to 500. mL, what would be the new pressure exerted on the balloon?</p> <p>(A) 523 mL (B) 560. mL (C) 945 mL (D) 1,010 torr (E) 1,140 torr</p>	E
2.	<p>Which of the following is a reasonably pleasant room temperature?</p> <p>(A) 20. K (B) 72. K (C) 273 K (D) 293 K (E) 345 K</p>	D	7.	<p>If the pressure exerted on 0.250 L of neon gas is changed from 320. torr to 640. torr, what is the new volume?</p> <p>(A) 125 mL (B) 250. mL (C) 500. mL (D) 750. mL (E) 1.00 L</p>	A
3.	<p>What is the kelvin temperature of -127°C?</p> <p>(A) 127 K (B) -146 K (C) 146 K (D) -400. K (E) 400. K</p>	C	8.	<p>A sample of argon is at a pressure of 60. torr with a temperature of 320 K. What must its pressure become if the temperature is raised by a factor of 12 to become 3,800 K without any change in volume?</p> <p>(A) 5.0 torr (B) 48 torr (C) 72 torr (D) 430 torr (E) 720 torr</p>	E
4.	<p>This graph could be used to show the relationship between</p>  <p>(A) volume and pressure (B) pressure and temperature (C) (1/volume) and pressure</p>	A	9.	<p>Anesthetic gas is normally given to a patient when the room temperature is 20.0 °C and the patient's body temperature is 37°C. To what volume would 2,670 mL of 20.0 °C gas expand if the pressure and mass of gas stay constant?</p> <p>(A) 1,440 mL (B) 2,520 mL (C) 2,670 mL (D) 2,820 mL (E) 4,940 mL</p>	D
5.	<p>In this graph describing gases</p>  <p>(A) volume and pressure (B) pressure and temperature</p>	B			

<p>10.</p>	<p>Suppose we collect oxygen over water at 18°C in the apparatus shown</p>  <table border="1"> <thead> <tr> <th colspan="2">Water Vapor Pressure</th> </tr> <tr> <th>Temp °C</th> <th>Pressure mmHg</th> </tr> </thead> <tbody> <tr><td>10</td><td>9.2</td></tr> <tr><td>11</td><td>9.8</td></tr> <tr><td>12</td><td>10.5</td></tr> <tr><td>13</td><td>11.2</td></tr> <tr><td>14</td><td>12.0</td></tr> <tr><td>15</td><td>12.8</td></tr> <tr><td>16</td><td>13.6</td></tr> <tr><td>17</td><td>14.5</td></tr> <tr><td>18</td><td>15.5</td></tr> <tr><td>19</td><td>16.5</td></tr> <tr><td>20</td><td>17.5</td></tr> <tr><td>21</td><td>18.7</td></tr> <tr><td>22</td><td>19.8</td></tr> <tr><td>23</td><td>21.1</td></tr> <tr><td>24</td><td>22.4</td></tr> <tr><td>25</td><td>23.8</td></tr> </tbody> </table> <p>The volume of the gas collected is 310. mL and the total atmospheric pressure is 738 torr.</p> <p>What is the partial pressure of the water vapor in the bottle?</p> <p>(A) 15.5 torr (B) 17.5 torr (C) 295 torr (D) 722 torr (E) 753 torr</p>	Water Vapor Pressure		Temp °C	Pressure mmHg	10	9.2	11	9.8	12	10.5	13	11.2	14	12.0	15	12.8	16	13.6	17	14.5	18	15.5	19	16.5	20	17.5	21	18.7	22	19.8	23	21.1	24	22.4	25	23.8	<p>A</p>
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<p>11.</p>	<p>The volume of the gas collected by water displacement is 310. mL and the total atmospheric pressure is 738 torr. What is the pressure of the dry gas?</p> <p>(A) 15.5 torr (B) 17.5 torr (C) 295 torr (D) 722 torr (E) 753 torr</p>	<p>D</p>																																				
<p>12.</p>	<p>What will be the final pressure of a sample of nitrogen with a volume of 95 L at 745 torr and 25°C if it's heated to 60.°C and given a volume of 115 L?</p> <p>(A) 550 torr (B) 690 torr (C) 810 torr (D) 1010 torr (E) 1480 torr</p>	<p>B</p>																																				
<p>13.</p>	<p>The pressure exerted on a gas remains constant in a flexible container while its temperature is increased. What will happen to the volume of the gas?</p> <p>(A) increase (B) decrease (C) cannot be determined from this data</p>	<p>A</p>																																				
<p>14.</p>	<p>What is the standard temperature at STP?</p> <p>(A) 0°C (B) 1°C (C) 273°C (D) 25°C (E) 20.°C</p>	<p>A</p>																																				
<p>15.</p>	<p>What is the mass of 11.2 liters of helium at STP? (FW helium=4.002 g/mol)</p> <p>(A) 2.00 g (B) 2.80 g (C) 4.00 g (D) 11.2 g (E) 44.8 g</p>	<p>A</p>																																				
<p>16.</p>	<p>How many liters of NH₃ can be produced from 26 liters of N₂ if both gases are at STP ?</p> $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$ <p>(A) 13 L (B) 26 L (C) 39 L (D) 52 L (E) 78 L</p>	<p>D</p>																																				
<p>17.</p>	<p>The 4.4 grams of dry ice is heated into carbon dioxide gas at STP. How many moles of carbon dioxide would this be?</p> <p>(A) 0.10 mol (B) 0.20 mol (C) 0.22 mol (D) 0.44 mol (E) 10. mol</p>	<p>A</p>																																				

18.	The 4.4 grams of dry ice is heated into carbon dioxide gas at STP. What is the volume of the gas under these conditions? (A) 2.0 mL (B) 2.24 L (C) 22.4 L (D) 9.6 L (E) 96 L	B
19.	A liter of hydrogen gas, H ₂ , is collected at 0°C and 1.00 atm. How many moles would this be? (A) 0.0446 mol (B) 0.0892 (C) 1.01 mol (D) 2.02 mol (E) 22.4 mol	A
20.	A liter of hydrogen gas, H ₂ , is collected at 0°C and 1.00 atm. What would its mass be? (A) 0.0446 g (B) 0.0892 g (C) 1.01 g (D) 2.02 g (E) 44.8 g	B
21.	What would be the pressure (atm) inside a 6.0 L vessel at 20. °C that contained 44 grams of carbon dioxide (FW CO ₂ =44 g/mol) (A) 0.273 atm (B) 0.56 atm (C) 1.00 atm (D) 3.0 atm (E) 4.0 atm	E
22.	What volume of argon, Ar, would have to be collected at 744 torr at 28.0°C to have a sample containing 0.015 mol? (FW argon=39.95 g/mol) (A) 0.50 L (B) 0.76 L (C) 0.38 L (D) 0.25 L (E) 2.24 L	C
23.	A gas has a density at 1.52 atm and 402 K of 0.737 g/L. What is the molecular mass of the gas? (A) 16 g/mol (B) 28 g/mol (C) 32 g/mol (D) 44 g/mol (E) 64 g/mol	A
24.	A sample of unknown gas having a mass of 1.840 g occupied 448.2 mL at 1.000 atm and had a temperature of 273.15 K How many moles of the unknown gas were present? (A) 0.03999 mol (B) 0.7988 mol (C) 0.02001 mol (D) 1.840 mol (E) 1.587 mol	C
25.	A chemist isolated 0.0126 g one of a compound in a weighing bulb of a vacuum line. The volume of this bulb was 385 mL. At 25.0 °C, the pressure in the bulb was 11 torr. How many moles of the compound were present? (A) 9.0×10^{-4} mol (B) 4.5×10^{-4} mol (C) 3.9×10^{-4} mol (D) 2.3×10^{-4} mol (E) 1.8×10^{-4} mol	D
26.	A chemist isolated 0.0126 g of one of a compound in a weighing bulb of a vacuum line. The volume of this bulb was 385 mL. At 25.0°C, the pressure in the bulb was 11 torr. What was the molar mass of the compound? (A) 14 g/mol (B) 28 g/mol (C) 32 g/mol (D) 56 g/mol (E) 70. g/mol	D
27.	A compound of nitrogen and oxygen was made to decompose into 2.013 L of nitrogen and 4.026 L of oxygen. Which would be possible formulas for this gas? I. N ₂ O II. NO ₂ III. N ₂ O ₄ (A) Only I (B) Only II (C) Only III (D) Only I & II (E) Only II & III	E

28.	<p>Butane lighters contain butane liquefied by the pressure in the container. Upon releasing the pressure the butane escapes as a gas and ignites as described by the following reaction:</p> $2C_4H_{10}(g) + 13O_2(g) \rightarrow 8CO_2(g) + 10H_2O(g)$ <p>If butane lighter released 125 mL of butane, what volume of oxygen (at the same temperature and pressure as the butane) would be needed to burn the butane at room temperature and pressure?</p> <p>(A) 125 mL (B) 250. mL (C) 578 mL (D) 756 mL (E) 813 mL</p>	E																				
29.	<p>There are four 22.4 L Liter balloons with a pressure of 760. torr, and temperature of 0°C. Each contains a different gas.</p> <table border="0" style="width: 100%;"> <tr> <td>(A) nitrogen</td> <td>N₂</td> <td>FW</td> <td>28.0</td> </tr> <tr> <td>(B) sulfur hexafluoride</td> <td>SF₆</td> <td>FW</td> <td>146.0</td> </tr> <tr> <td>(C) helium</td> <td>He</td> <td>FW</td> <td>4.0</td> </tr> <tr> <td>(D) carbon dioxide</td> <td>CO₂</td> <td>FW</td> <td>44.0</td> </tr> <tr> <td>(E) oxygen</td> <td>O₂</td> <td>FW</td> <td>32.0</td> </tr> </table> <p>Which gas is the major component in air?</p> <p>(A) nitrogen (B) sulfur hexafluoride (C) helium (D) carbon dioxide</p>	(A) nitrogen	N ₂	FW	28.0	(B) sulfur hexafluoride	SF ₆	FW	146.0	(C) helium	He	FW	4.0	(D) carbon dioxide	CO ₂	FW	44.0	(E) oxygen	O ₂	FW	32.0	A
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30.	<p>Which gas would have the highest average molecular speed at 0°C?</p> <p>(A) nitrogen (B) sulfur hexafluoride (C) helium (D) carbon dioxide (E) they would all have the same average molecular speed</p>																					
31.	<p>Which balloon would leak from a small hole in the balloon most slowly?</p> <p>(A) nitrogen (B) sulfur hexafluoride (C) helium (D) carbon dioxide (E) they would all leak at the same rate</p>	C																				
32.	<p>Which balloon would contain the greatest number of molecules?</p> <p>(A) nitrogen (B) sulfur hexafluoride (C) helium (D) carbon dioxide (E) they would all have the same number of molecules</p>	E																				
33.	<p>Which balloon would contain the greatest number of atoms?</p> <p>(A) nitrogen (B) sulfur hexafluoride (C) helium (D) carbon dioxide (E) they would all have the same number of atoms.</p>	B																				
34.	<p>Which balloon would contain the greatest number of molecules?</p> <p>(A) nitrogen (B) sulfur hexafluoride (C) helium (D) carbon dioxide (E) they would all have the same number of molecules</p>	E																				
35.	<p>Which balloon would have the highest average kinetic energy?</p> <p>(A) nitrogen (B) sulfur hexafluoride (C) helium (D) carbon dioxide (E) they would all have the same average kinetic energy</p>	E																				
36.	<p>Approximately what percentage of space in the carbon dioxide balloon is actually occupied by carbon dioxide molecules?</p> <p>(A) 0.2% (B) 2% (C) 20% (D) 80%</p>	A																				