**Dougherty Valley HS AP Chemistry**

**WORKSHEET #2**

**Gas Laws – Boyle’s Law**

Name: **KEY** Date: Period: Seat #:

Boyle’s Law states that the volume of a gas varies inversely with its pressure if temperature is held constant.

(If one goes up, the other goes down.) We use the formula:

$$P\_{1} x V\_{1}= P\_{2} x V\_{2}$$

***Solve the following problems (assuming constant temperature). Assume all number are 3 significant figures.***

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| A sample of oxygen gas occupies a volume of 250. mL at 740. torr pressure. What volume will it occupy at800. torr pressure? 231 mL$$\left(740 torr\right)\left(250. mL\right)=\left(800. torr\right)\left(V\_{2}\right);=231 mL$$ |
| A sample of carbon dioxide occupies a volume of 3.50 Liters at 125 kPa pressure. What pressure wouldthe gas exert if the volume was decreased to 2.00 liters? 219 kPa$$\left(125 kPa\right)\left(3.50 L\right)=\left(P\_{2}\right)\left(2.00 L\right);=219 kPa$$ |
| A 2.00-Liter container of nitrogen had a pressure of 3.20 atm. What volume would be necessary todecrease the pressure to 1.00 atm? 6.40 L$$\left(3.20 atm\right)\left(2.00 L\right)=\left(1.00 atm\right)\left(V\_{2}\right);=6.40 L$$ |
| Ammonia gas occupies a volume of 450.0 mL as a pressure of 720. mmHg. What volume will it occupy atstandard pressure (760 mmHg)? 426 mL$$\left(720 mmHg\right)\left(450.0 mL\right)=\left(760 mmHg\right)\left(V\_{2}\right);=426 mL$$ |
| A 175 mL sample of neon had its pressure changed from 75.0 kPa to 150.0 kPa. What is its new volume?87.5 mL$$\left(75.0 kPa\right)\left(175 mL\right)=\left(150.0 kPa\right)\left(V\_{2}\right);=87.5 mL$$ |