

Name \_\_\_\_\_ Period \_\_\_\_\_

College Prep Chemistry of the Earth

Assignment 7H – *Fundamental Gas Law Review*

20 Points

Complete the following problems based on the three fundamental gas laws

<i>Boyle's Law Forms</i>	$P_1 = \frac{P_2 V_2}{V_1}$	$V_1 = \frac{P_2 V_2}{P_1}$	$P_2 = \frac{P_1 V_1}{V_2}$	$V_2 = \frac{P_1 V_1}{P_2}$
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<i>Charles' Law Forms</i>	$V_1 = \frac{V_2 T_1}{T_2}$	$T_1 = \frac{V_1 T_2}{V_2}$	$V_2 = \frac{V_1 T_2}{T_1}$	$T_2 = \frac{V_2 T_1}{V_1}$
$V_1 T_2 = V_2 T_1$				

<i>Gay-Lussac's Law Forms</i>	$P_1 = \frac{P_2 T_1}{T_2}$	$T_1 = \frac{P_1 T_2}{P_2}$	$P_2 = \frac{P_1 T_2}{T_1}$	$T_2 = \frac{P_2 T_1}{P_1}$
$P_1 T_2 = P_2 T_1$				

$V_1 = 1.81\text{L}, P_1 = 6.63\text{atm}$   
 $V_2 = 4.32\text{L}, P_2 = \underline{\hspace{1cm}}\text{atm}$

$P_2 =$  \_\_\_\_\_

$P_2 =$  \_\_\_\_\_

$V_1 = \underline{\hspace{1cm}}\text{L}, P_1 = 7.95\text{atm}$   
 $V_2 = 3.17\text{L}, P_2 = 5.34\text{atm}$

$V_1 =$  \_\_\_\_\_

$V_1 =$  \_\_\_\_\_

$V_1 = 2.48\text{L}, T_1 = \underline{\hspace{1cm}}\text{K}$   
 $V_2 = 1.75\text{L}, T_2 = 610.12\text{K}$

$T_1 =$  \_\_\_\_\_

$T_1 =$  \_\_\_\_\_

$V_1 = 2.06\text{L}, T_1 = 368.32\text{K}$   
 $V_2 = \underline{\hspace{1cm}}\text{L}, T_2 = 472.4\text{K}$

$V_2 =$  \_\_\_\_\_

$V_2 =$  \_\_\_\_\_

$P_1 = 10.59\text{atm}, T_1 = 295.58\text{K}$   
 $P_2 = \underline{\hspace{1cm}}\text{atm}, T_2 = 482.74\text{K}$

$P_2 =$  \_\_\_\_\_

$P_2 =$  \_\_\_\_\_

$P_1 = 7.23\text{atm}, T_1 = 736.38\text{K}$   
 $P_2 = 6.19\text{atm}, T_2 = \underline{\hspace{1cm}}\text{K}$

$T_2 =$  \_\_\_\_\_

$T_2 =$  \_\_\_\_\_

P and V [Boyle's Law] Find  $\frac{P_1 V_1}{P_2}$

$$\frac{P_1 = 4.32 \text{ atm}}{P_2 = 6.13 \text{ atm}} \frac{V_1 = 2.47 \text{ L}}{V_2 = \text{L}}$$

$$V_2 = \frac{4.32 \text{ atm} \cdot 2.47 \text{ L}}{6.13 \text{ atm}}$$

$$V_2 = 1.74 \text{ L} \quad 1.740685 \dots \rightarrow 0 \downarrow \text{round down}$$

$$\frac{P_1 = \text{atm}}{P_2 = 3.57 \text{ atm}} \frac{T_1 = 482.31 \text{ K}}{T_2 = 294.38 \text{ K}}$$

$$P_1 = \frac{3.57 \text{ atm} \cdot 482.31 \text{ K}}{294.38 \text{ K}}$$

$$P_1 = 5.85 \text{ atm} \quad 5.84906 \dots \rightarrow 9 \uparrow \text{round up}$$

P and T = gay-lussac's law

Find  $P_1 = \frac{P_2 T_1}{T_2}$

$$V_1 = 0.84 \text{ L} \quad T_1 = \text{K}$$

$$V_2 = 1.35 \text{ L} \quad T_2 = 438.28 \text{ K}$$

$$T_1 =$$

$$T_1 =$$

$$P_1 = 0.74 \text{ atm} \quad V_1 = 5.27 \text{ L}$$

$$P_2 = \text{atm} \quad V_2 = 3.85 \text{ L}$$

$$P_2 =$$

$$P_2 =$$