

Name _____ Period _____

College Prep Chemistry of the Earth

Assignment 70 – Daltons Law of Partial Pressures

30 Points

Complete the following problems based on the ideal gas law

<i>Ideal Gas Law Forms</i>	$P = \frac{nRT}{V}$	$V = \frac{nRT}{P}$	$n = \frac{PV}{RT}$	$T = \frac{PV}{nR}$
$PV = nRT$				

<i>Ideal Gas Constant [R]</i>	$R = 0.0821 \frac{L \cdot atm}{mol \cdot K}$	<i>Dalton Law</i>	$P_{Total} = P_1 + P_2 + P_3$	$P_1 = P_{Total} - P_2 - P_3$
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$P_{H_2} = 2.48 atm, P_{CO_2} = 1.28 atm$ $P_{N_2} = 5.45 atm, P_{Total} = \underline{\hspace{2cm}} atm$

$P_{Total} =$	
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$P_{Total} =$	
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$P_{Total} = \underline{\hspace{2cm}} atm, V = 40.66 L$ $n = 9.03 mol, T = \underline{\hspace{2cm}} K$

$T =$	
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$T =$	
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$P_{O_2} = 7.27 atm, P_{N_2} = 6.54 atm$ $P_{CO} = 1.41 atm, P_{Total} = \underline{\hspace{2cm}} atm$

$P_{Total} =$	$7.27 atm + 6.54 atm + 1.41 atm$
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$P_{Total} =$	$15.22 atm$	(P_{Total})
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$P_{Total} = \underline{\hspace{2cm}} atm, V = \underline{\hspace{2cm}} L$ $n = 3.67 mol, T = 406.61 K$
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$V =$	$3.67 mol \cdot 0.0821 \frac{L \cdot atm}{mol \cdot K} \cdot 406.61 K$	$15.22 atm$
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$V =$	$8.05 L$	$8.04956... 2 \text{ after}$
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$V = \frac{nRT}{P}$

Rnd to 2 after

$P_{HCN} = 2.15 atm, P_{N_2} = 8.17 atm$ $P_{O_2} = 1.14 atm, P_{Total} = \underline{\hspace{2cm}} atm$
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$P_{Total} =$	
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$P_{Total} =$	
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$P_{Total} = \underline{\hspace{2cm}} atm, V = 32.45 L$ $n = 1.58 mol, T = \underline{\hspace{2cm}} K$

$T =$	
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$T =$	
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$P_{Cl_2} = 9.46 atm, P_{H_2} = 3.01 atm$ $P_{Br_2} = 2.53 atm, P_{Total} = \underline{\hspace{2cm}} atm$
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$P_{Total} =$	
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$P_{Total} =$	
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$P_{Total} = \underline{\hspace{2cm}} atm, V = 20.34 L$ $n = \underline{\hspace{2cm}} mol, T = 213.53 K$

$n =$	
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$n =$	
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$P_{F_2} = 14.28\text{atm}$, $P_{H_2} = 8.28\text{atm}$
 $P_{Cl_2} = 4.37\text{atm}$, $P_{Total} = \underline{\hspace{2cm}}\text{atm}$

$P_{Total} =$

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$P_{Total} =$

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$P_{O_2} = \underline{\hspace{2cm}}\text{atm}$, $V = 55.36\text{L}$
 $n = 1.72\text{mol}$, $T = 553.6\text{K}$

$P_{O_2} =$

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$P_{O_2} =$

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$P_{N_2} = \underline{\hspace{2cm}}\text{atm}$, $V = 66.26\text{L}$
 $n = 2.01\text{mol}$, $T = 742.99\text{K}$

$P_{N_2} =$

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$P_{N_2} =$

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$P_{CO_2} = \underline{\hspace{2cm}}\text{atm}$, $V = 81.74\text{L}$
 $n = 3.41\text{mol}$, $T = 274.84\text{K}$

$P_{CO_2} =$

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$P_{CO_2} =$

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$P_{SO_2} = \underline{\hspace{2cm}}\text{atm}$, $V = 141.47\text{L}$
 $n = 2.05\text{mol}$, $T = 295.24\text{K}$

$P_{SO_2} =$

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$P_{SO_2} =$

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$P_{Total} = \underline{\hspace{2cm}}\text{atm}$, $V = \underline{\hspace{2cm}}\text{L}$
 $n = 1.53\text{mol}$, $T = 357.52\text{K}$

$V =$

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$V =$

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$P_{O_2} = \underline{\hspace{2cm}}\text{atm}$, $P_{SO_2} = 2.50\text{atm}$
 $P_{N_2} = 3.58\text{atm}$, $P_{Total} = \underline{\hspace{2cm}}\text{atm}$

$P_{Total} =$

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$P_{Total} =$

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$P_{N_2} = \underline{\hspace{2cm}}\text{atm}$, $P_{SO} = 4.52\text{atm}$
 $P_{O_2} = 2.88\text{atm}$, $P_{Total} = \underline{\hspace{2cm}}\text{atm}$

$P_{Total} =$

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$P_{Total} =$

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$P_{CO_2} = \underline{\hspace{2cm}}\text{atm}$, $P_{CO_2} = 4.72\text{atm}$
 $P_{N_2} = 10.83\text{atm}$, $P_{Total} = \underline{\hspace{2cm}}\text{atm}$

$P_{Total} =$

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$P_{Total} =$

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$P_{SO_2} = \underline{\hspace{2cm}}\text{atm}$, $P_{NO_2} = 4.39\text{atm}$
 $P_{O_2} = 1.52\text{atm}$, $P_{Total} = \underline{\hspace{2cm}}\text{atm}$

$P_{Total} =$

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$P_{Total} =$

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