

Name _____ Period _____

College Prep Chemistry of the Earth

Assignment 6I – *Mass of an Ideal Gas*

20 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>	$R = 0.0821 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}}$			

$P = 0.94\text{atm}$, $V = 59.38\text{L}$, $n = \underline{\hspace{1cm}}$ mol CO_2 , $T = 428.45\text{K}$

Molar Mass $\text{CO}_2 = 44.01\text{g/mol}$ mass $\text{CO}_2 = \underline{\hspace{1cm}}$ g CO_2

$n =$	

mass $\text{CO}_2 =$		

$n =$	
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mass $\text{CO}_2 =$	
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$P = 1.85\text{atm}$, $V = 36.37\text{L}$, $n = \underline{\hspace{1cm}}$ mol H_2O , $T = 327.49\text{K}$
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Molar Mass $\text{CO}_2 = 18.02\text{g/mol}$ mass $\text{H}_2\text{O} = \underline{\hspace{1cm}}$ g H_2O

$n =$	

mass $\text{H}_2\text{O} =$		

$n =$	
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mass $\text{H}_2\text{O} =$	
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$P = 4.85\text{atm}$, $V = 18.48\text{L}$, $n = \underline{\hspace{1cm}}$ mol SO_2 , $T = 526.27\text{K}$

Molar Mass $\text{SO}_2 = 64.07\text{g/mol}$ mass $\text{SO}_2 = \underline{\hspace{1cm}}$ g SO_2

$n =$	

mass $\text{SO}_2 =$		

$n =$	
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mass $\text{SO}_2 =$	
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mass HCN = 47.48g, n = ____ mol HCN
Molar Mass HCN = 27.03g/mol

n =		
n =		

P = 2.35atm, V = ____ L,
n = ____ mol HCN, T = 384.58K

V =	
V =	

mass HCl = 67.32g, n = ____ mol HCl
Molar Mass HCl = 36.36g/mol

n =		
n =		

P = 0.82atm, V = 42.84L,
n = ____ mol HCl, T = ____ K

T =	
T =	

mass SO₃ = 47.48g, n = ____ mol SO₃
Molar Mass SO₃ = 80.07g/mol

n =		
n =		

P = ____ atm, V = 41.32L,
n = ____ mol SO₃, T = 391.48K

P =	
P =	

mass Cl₂ = 183.42g, n = ____ mol Cl₂
Molar Mass Cl₂ = 70.90g/mol

n =		
n =		

P = 0.95atm, V = ____ L,
n = ____ mol Cl₂, T = 459.49K

V =	
V =	