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**Include file name:** Chemistry\_Worksheet\_0058

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1. **011 Chapter #040**

A sample of nitrogen gas is confined to a 14.0 L container at 375 torr and 37.0°C. How many moles of nitrogen are in the container ( $R = 0.08206 \text{ L atm/mol K}$ ,  $1 \text{ atm} = 760 \text{ torr}$ )?

Student Response
a. 0.271 mol
b. 2.27 mol
c. 3.69 mol
d. 206 mol
e. 227 mol

2. **011 Chapter #010**

A flask containing neon gas is connected to an open-ended mercury manometer. The open end is exposed to the atmosphere, where the prevailing pressure is 745 torr. The mercury level in the open arm is 50. mm below that in the arm connected to the flask of neon. What is the neon pressure, in torr?

Student Response
a. -50. torr
b. 50. torr
c. 695 torr
d. 795 torr
e. None of these choices is correct.

3. **011 Chapter #055**

How many liters of chlorine gas at 25°C and 0.950 atm can be produced by the reaction of 12.0 g of  $\text{MnO}_2$ ?  $\text{MnO}_2(\text{s}) + 4\text{HCl}(\text{aq}) \rightarrow \text{MnCl}_2(\text{aq}) + 2\text{H}_2\text{O}(\text{l}) + \text{Cl}_2(\text{g})$  ( $R = 0.08206 \text{ L atm/mol K}$ )

Student Response
a. $5.36 \times 10^{-3} \text{ L}$
b. 0.138 L
c. 0.282 L
d. 3.09 L
e. 3.55 L

4. **011 Chapter #025**

A sample of gas occupies 24.5 L at a pressure of 1.57 atm, what is the pressure if the volume is increased to 48.3 L?

Student Response
a. 0.796 atm
b. 1.26 atm
c. 3.1 atm
d. $5.3 \times 10^{-4}$ atm
e. 1,858 atm

**5. 011 Chapter #050**

A flask with a volume of 3.16 L contains 9.33 grams of an unknown gas at 32.0°C and 1.00 atm. What is the molar mass of the gas ( $R = 0.08206 \text{ L atm/mol K}$ )?

Student Response
a. 7.76 g/mol
b. 66.1 g/mol
c. 74.0 g/mol
d. 81.4 g/mol
e. 144 g/mol

**6. 011 Chapter #015**

"The volume of an ideal gas is directly proportional to its absolute temperature at constant pressure and number of moles" is a statement of \_\_\_\_\_ Law.

Student Response
a. Charles's
b. Boyle's
c. Amontons's
d. Avogadro's
e. Henry's

**7. 011 Chapter #020**

A sample of a gas occupies  $1.40 \times 10^3$  mL at  $25^\circ\text{C}$  and 760 mmHg. What volume will it occupy at the same temperature and 380 mmHg?

Student Response

- a. 2800 mL
- b. 2100 mL
- c. 1400 mL
- d. 1050 mL
- e. 700 mL

8. **011 Chapter #030**

What are the conditions of STP?

Student Response

- a. 0 K and 1 atm
- b. 273.15 K and 760 torr
- c.  $0^\circ\text{C}$  and 760 atm
- d.  $273.15^\circ\text{C}$  and 760 torr
- e. None of these choices is correct.

9. **011 Chapter #035**

Calculate the volume occupied by 25.2 g of  $\text{CO}_2$  at 0.84 atm and  $25^\circ\text{C}$  ( $R = 0.08206$  L atm/mol K).

Student Response

- a. 0.060 L
- b. 1.34 L
- c. 16.9 L
- d. 24.2 L
- e. 734 L

10. **011 Chapter #060**

Hydrogen peroxide was catalytically decomposed and 75.3 mL of oxygen gas was collected over water at  $25^\circ\text{C}$  and 742 torr. What mass of oxygen was collected? ( $P_{\text{water}} = 24$  torr at  $25^\circ\text{C}$ ,  $R = 0.08206$  L atm/mol K)

Student Response

- a. 0.00291 g

b. 0.0931 g

c. 0.0962 g

d. 0.0993 g

e. 0.962 g

**11. 011 Chapter #045**

Calculate the density of Ar(g) at  $-11^{\circ}\text{C}$  and 675 mmHg ( $R = 0.08206 \text{ L atm/mol K}$ ,  $1 \text{ atm} = 760 \text{ mmHg}$ ).

Student  
Response

a. 1.52 g/L

b. 1.65 g/L

c. -39.3 g/L

d. 39.95  
g/L

e. 1254 g/L

**12. 011 Chapter #001**

Which of the following is not a gas at room temperature?

Student  
Response

a.  $\text{NH}_3$

b.  $\text{CO}_2$

c.  $\text{I}_2$

d.  $\text{CH}_4$

e.  $\text{H}_2$

**13. 011 Chapter #005**

Hydrogen gas exerts a pressure of 466 torr in a container. What is this pressure in atmospheres ( $1 \text{ atm} = 101,325 \text{ Pa} = 760 \text{ torr}$ )?

Student Response

a. 0.217 atm

b. 0.466 atm

c. 0.613 atm

d. 1.63 atm

e. 4.60 atm