

Name KEY

Date _____

Due Date _____

Mark _____ /24

Correct and Hand in Again by _____

Chemistry 11

Hand In Assignment # 4 – Mass, Mole, Volume Conversions

This Assignment will be marked and you are allowed to do one set of corrections.

1. Make the following conversions, clearly showing your steps. Include proper units in all of your work and in your answer. Use your periodic table and express all molar masses to 1 decimal place.

- a. 137.5 grams of PCl_3 = ? moles (2 marks)

$$\textcircled{2} \quad 137.5 \text{ g } \text{PCl}_3 \times \frac{1 \text{ mol}}{137.5 \text{ g}} = 1.00 \text{ mol}$$

Answer _____

1.00 mole

- b. 0.00256 moles of SrCrO_4 = ? grams (2 marks)

$$\textcircled{2} \quad 0.00256 \text{ mol } \text{SrCrO}_4 \times \frac{203.6 \text{ g}}{1 \text{ mol}} =$$

Answer _____

0.521 g

- c. 92.288 L of NO_2 at STP = ? moles (2 marks)

$$\textcircled{2} \quad 92.288 \text{ L} \times \frac{1 \text{ mol}}{22.4 \text{ L}} = 4.12 \text{ mol}$$

Answer _____

4.12 mol

- d. 3.2×10^2 moles of SO_3 gas at STP = ? L (2 marks)

$$\textcircled{2} \quad 3.2 \times 10^2 \text{ mol} \times \frac{22.4 \text{ L}}{1 \text{ mol}} =$$

Answer _____

7168 L (7.168 x 10³) L8

e. 806.895 g of PCl_5 gas = ? L (STP) (4 marks)

$$806.895 \text{ g } \text{PCl}_5 \times \frac{1 \text{ mol}}{208.5 \text{ g}} \times \frac{22.4 \text{ L}}{1 \text{ mol}} = 86.7 \text{ L}$$

(3.87 mol)

Answer

86.7 L

f. 3136 mL of CH_4 gas at STP = ? g (4 marks)

$$3.136 \text{ L} \times \frac{1 \text{ mol}}{22.4 \text{ L}} \times \frac{16.0 \text{ g}}{1 \text{ mole}} = 2.24 \text{ g}$$

(0.14 mol)

Answer

2.24 g

g. 2.25 kg of nitrogen gas = ? L (STP) (4 marks)

$$2250 \text{ g } \text{N}_2 \times \frac{1 \text{ mol}}{28.0 \text{ g}} \times \frac{22.4 \text{ L}}{1 \text{ mol}} = 1800 \text{ L}$$

(80.357 mol)

Answer

1800 L

h. 0.00285 kg of C_2H_6 (g) = ? mL (4 marks)

$$2.85 \text{ g } \text{C}_2\text{H}_6 \times \frac{1 \text{ mol}}{30.0 \text{ g}} \times \frac{22.4 \text{ L}}{1 \text{ mol}} \times \frac{1000 \text{ mL}}{1 \text{ L}} = 2128 \text{ mL}$$

(0.095 mol) (2.128 L)

Answer

2128 mL

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