CHM 110
Gas Laws Practice Set

Solve the following problems Write the answer in the answer blank, and show work in the space provided.

1) What volume of CO_2 gas would (given enough carbon and chlorine) be produced at 504 ^oC and 1.10 atm by the reaction of 45.0 g of TiO_2 in the following reaction?

$$TiO_2(s) + C(s) + 2Cl_2(g) \rightarrow TiCl_4(g) + CO_2(g)$$

Answer: _____L CO_2

2) C_2H_5OH burns in air to form CO_2 and H_2O. What volume of carbon dioxide gas (at 25.0^oC and 1.07 atm) can be produced when 55.0 grams of C_2H_5OH burns in sufficient oxygen?

$$C_2H_5OH(l) + 3O_2(g) \rightarrow 2CO_2(g) + 3H_2O(l)$$

Answer: _____L CO_2

3) What mass of magnesium nitride is required to produce 475 L of ammonia gas at STP via the following reaction??

$$Mg_3N_2(s) + 6H_2O(l) \rightarrow 3Mg(OH)_2(s) + 2NH_3(g)$$

Answer: _____ g Mg_3N_2

4) A 4.50 L flask contains pure nitrogen gas (N_2) at 0.979 atm and 30.0 ^oC. What is the mass of nitrogen gas inside the flask?

Answer: _____g N_2