Name: _____   Date: _____
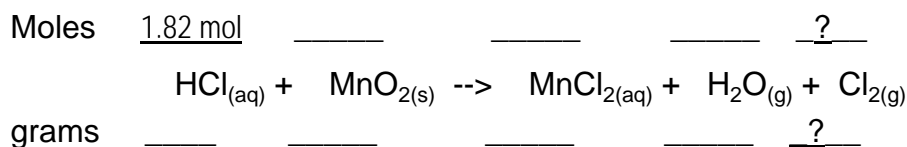
STOICHIOMETRY involving reactions: Weight vs. Number (The Art of Counting Without Counting)
1. Start with balanced equation.
2. Mass to Moles (consult Periodic Table). Add up atomic weights to find mass of one mole
3. Use Balanced Equation to adjust moles.
4. Moles back to Mass (consult Periodic Table). Add up atomic weights to find mass of one mole.

Problem 3.61, page 128

Chlorine gas can be made in the laboratory by the reaction of hydrochloric acid with manganese (IV) oxide. When 1.82 moles of HCl reacts with excess MnO_2 (a) How many moles of Cl_2 form?   How many grams of Cl_2 form?

Moles   1.82 mol   _____   _____   _____   _?_

$$HCl_{(aq)} + MnO_{2(s)} \rightarrow MnCl_{2(aq)} + H_2O_{(g)} + Cl_{2(g)}$$

grams   _____   _____   _____   _____   _?_

Problem 3.85 p. 129

Cyanogen $(CN)_2$ has been observed in the atmosphere of Titan, Saturn's largest moon. On Earth, it is used as a welding gas and a fumigant. In its reaction with fluoride gas, carbon tetrafluoride and nitrogen trifluoride are produced. What mass of carbon tetrafluoride forms when 80g of of reactant is used?

Moles   _____   _____   _____   _____

$$\_(CN)_2 + \_F_2 \rightarrow \_CF_4 + \_NF_3$$

grams   __80g__   ____   _____   _____

Moles   _____   _____   _____   _____

$$\_(CN)_2 + \_F_2 \rightarrow \_CF_4 + \_NF_3$$

grams   _____   _80g_   _____   _____