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	_____	_____	_____	?
	$HCl_{(aq)}$ +	$MnO_{2(s)}$ -->	$MnCl_{2(aq)}$ +	$H_2O_{(g)}$ +	$Cl_{2(g)}$
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 -->	__CF_4 +	__NF_3	
grams	80g	_____	_____	_____	

Moles	_____	_____	_____	_____	
	__$(CN)_2$ +	__F_2 -->	__CF_4 +	__NF_3	
grams	_____	80g	_____	_____	