Practice Sheet Stoichiometry

1. Ammonia (NH3) and oxygen gas react to form nitrogen and water.

4 NH3(g) + 3 O2(g) 🡪 2 N2(g) + 6 H2O(g)

* 1. How many moles of oxygen gas are required to completely react with 8.24 moles of ammonia?
	2. Calculate the mass of nitrogen gas that will be formed from the reaction of 3.97 grams of ammonia with excess oxygen gas?
	3. How many molecules of water will result from the reaction of 4.51 moles of oxygen gas with excel ammonia?
	4. If 6.00 g of ammonia and 6.00 g of oxygen gas are put into a reaction vessel and allowed to react, how many grams of nitrogen gas will result?
	5. If 3.34 g of nitrogen gas are recovered from the reaction in part d above, what is the percent yield of the reaction?
1. Given the following balanced equation, answer the questions below:

4 Al*(s)* + 3 O2*(g)* 🡪 2 Al2O3*(s)*

* 1. How many formula units of Al2O3 will be produced by the reaction of 18 molecules of O2 with excess Al?
	2. How many moles of O2 are required to react with 8.36 moles of aluminum?
	3. How many grams of aluminum oxide will be formed by the reaction of 5.99 g of Al with excess O2?
	4. How many molecules of oxygen gas (O2) are required to make 24.8 grams of Al2O3?
	5. If 70.0 grams of aluminum oxide are formed from the reaction of 40.0 grams of aluminum and 40.0 grams of oxygen gas, what is the percent yield?