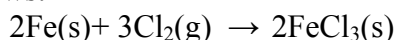


CHAPTER 7	Gravimetric Stoichiometry Problems	BLM 7.2.3
ASSESSMENT		

The following questions involve calculation of the amount of one reactant or product from an amount of another reactant or product in a balanced equation. The step in the process where the conversion from one substance to the other occurs is called the stoichiometric step, and it must be done in units of moles.

1. Iron reacts with chlorine as follows:



(a) How many moles of iron react with 1.3 mol of chlorine?

(b) How many grams of chlorine would react with 4.65 mol of iron?

(c) How many grams of iron(III) chloride would form if 0.520 g of chlorine reacted?

2. Ethane ($\text{C}_2\text{H}_6\text{(g)}$) reacts with oxygen in a hydrocarbon combustion reaction.

(a) Write the balanced equation for the combustion.

(b) How many moles of oxygen are required to react with 10.8 mol of ethane?

(c) How many grams of carbon dioxide would form if 0.550 mol of oxygen reacted?

CHAPTER 7	Gravimetric Stoichiometry Problems (continued)	BLM 7.2.3
ASSESSMENT		

(d) How many grams of ethane need to burn to cause 10.6 g of water vapour to form?

3. Xenon can be made to react with fluorine gas at about 400 °C. The product that forms is xenon tetrafluoride(g).

(a) Write a balanced equation for the reaction of Xe(g) with F₂(g).

(b) How many moles of xenon would react with 3.54×10^{-1} mol of fluorine?

(c) How many grams of xenon tetrafluoride will form if 4.35 g of fluorine react?

(d) How many grams of xenon react with 15.7 g of fluorine?