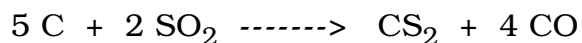# Mole - Mole Conversions

Name: _____

Complete the following mole to mole conversions. Show Work:

1) Carbon disulfide (CS_2) is an important industrial solvent. It is prepared by the following reaction:

$$5 \text{ C} + 2 \text{ SO}_2 \text{ -------> } CS_2 + 4 \text{ CO}$$

a) How many moles of carbon disulfide form when 2.7 mol of C react?

b) How many moles of carbon are needed to react with 5.44 mol of SO_2?

c) How many moles of CO form at the same time that 0.246 mol of CS_2 forms?

d) How many moles of sulfur dioxide are required to make 118 mol of CS_2?

2) How many moles of HCl can be produced from 6.0 moles of chlorine reacting with hydrogen? (You must write the balanced chemical equation first!)

3) Calculate the moles of water that can be produced when 0.35 moles of hydrogen burn in air. $2 \text{ H}_2 + \text{O}_2 \text{ -------> } 2 \text{ H}_2\text{O}$

4) How many moles of chlorine gas will be required to react with iron to produce 14 moles of iron (III) chloride?

Balanced Equation:

5) Given the balanced equation CH_4 + $2 O_2$ -------> CO_2 + $2 H_2O$, find each of the following:
a) How many mole of carbon dioxide are formed when 40 moles of oxygen is consumed?

b) How many moles of methane are needed to form 200 moles of water?

c) How many moles of oxygen combine with 0.050 moles methane?

6) Nitrogen monoxide (NO) reacts with oxygen to form nitrogen dioxide (NO_2). How many moles of oxygen combine with 500 moles of NO?

Balanced Equation:

Answers:

1a) 0.54 mol CS_2 1b) 13.6 mol C   1c) 0.984 mol CO   1d) 236 mol SO_2
2) 12 mol HCl   3) 0.35 mol H_2O 4) 21 mol Cl_2 5a) 20 mol CO_2
5b) 100 mol CH_4 5c) 0.1 mol O_2 6) 250 mol O_2