Chemistry
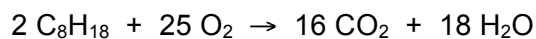## Stoichiometry WS 2

I.   *Complete the following stoichiometric calculations, balancing equations where necessary.*

1.   Consider the combustion of octane (C_8H_{18}):

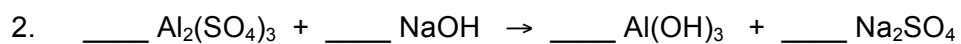$2\ C_8H_{18}\ +\ 25\ O_2\ \rightarrow\ 16\ CO_2\ +\ 18\ H_2O$

a.   How many grams of CO_2 are produced when 191.6 g of octane are burned?

b.   How many grams of oxygen gas are required to burn 47.03 g of octane?

c.   How many grams of H_2O are produced when 91.2 g oxygen gas are consumed?

d.   How many liters of CO_2 are produced at STP when the reaction yields 5.05 g H_2O?

2. _____ $Al_2(SO_4)_3$ + _____ NaOH → _____ $Al(OH)_3$ + _____ Na_2SO_4

    a. How many grams of NaOH are needed to completely react with 2.33 g $Al_2(SO_4)_3$?

    b. If 87.3 g of $Al(OH)_3$ are formed, how many grams of Na_2SO_4 will be produced?

3. _____ Ca_3P_2 + _____ H_2O → _____ $Ca(OH)_2$ + _____ PH_3
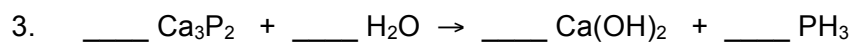
    a. How many grams of water are needed to react with 33.9 g of Ca_3P_2?

    b. How many grams of PH_3 are produced when the above reaction takes place?

    c. How many grams of H_2O will be needed to produce 715 g $Ca(OH)_2$?