Balance the following chemical reaction: C_8H_{18} (l) + O_2(g) → CO_2(g) + H_2O (l)

If you have 1.75 kg of C_8H_{18}, how many kg of oxygen gas do you need to react with all of the C_8H_{18}? And how much CO_2 will form if that reaction occurs?

If you react 1.25 kg of C_8H_{18} with 575 grams of O_2, how much water will be formed?
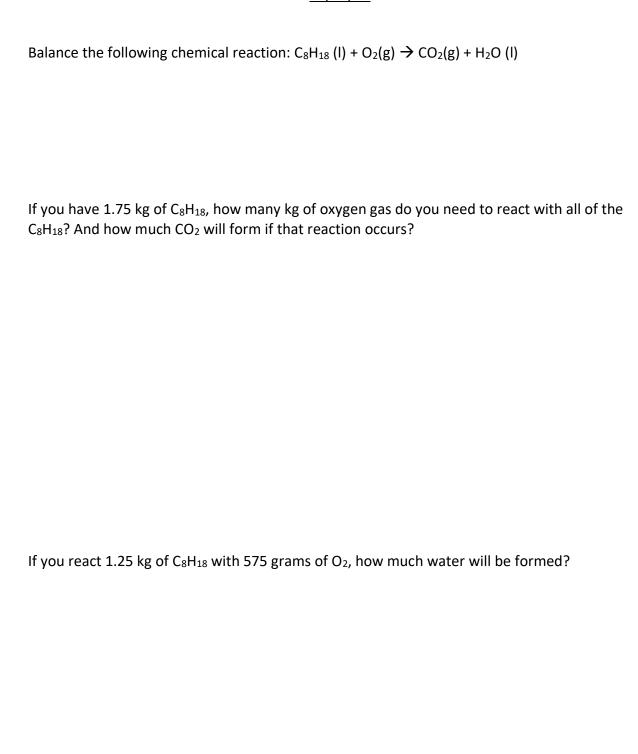
How much sodium nitrate do you need to make 750 mL of a 0.28 M sodium nitrate solution?

If you combine 352 grams of $C_6H_{12}O_6$ with enough water to make 1.50 L of solution, what is the molarity of this solution?

If you combine 79.5 grams of sodium oxalate with enough water to make 2.5 L of solution, what will be the concentration of the **sodium ion** in this solution?

If you have 500 mL of a 0.45 M solution of magnesium nitrate, how do you make 250 mL of a 0.18 M magnesium nitrate solution?

You combine 350 mL of 0.25 M aluminum nitrate with 425 mL of 0.15 M ammonium carbonate.
a) Write the balanced total and net ionic equations for what happens

b) How many grams of precipitate form?

c) What is the concentration of each ionic species in solution after the mixing occurs?

You are given 50.00 mL of a potassium hydroxide solution that is of unknown concentration. You perform a titration using 0.075M HNO_3 and find that you reach the equivalence point of the titration after 42.35 mL of the acid was added.

a) What was the molarity of the original potassium hydroxide solution?

b) What was the pH of the original potassium hydroxide solution?

c) What is the pH of the solution after the titration is finished?

In the presence of acid, potassium dichromate ($K_2Cr_2O_7$) reacts with with the Fe^{2+} ion to yield Fe^{3+}, water and the Cr^{3+} ion.

a) Write the balanced chemical equation for this process and identify what is being oxidized and what is being reduced.

b) A titration with potassium dichromate can be used to measure the amount of iron (II) present in a solution. To do this, one uses an indicator that turns purple in the presence of the dichromate ion. You have a solution with a volume of 25.00 ml that contains an unknown amount of iron (II). You titrate it with a 0.250 M solution of potassium dichromate and the solution turns purple after you have added 17.34 mL of the dichromate. How many moles of Fe^{2+} were present in the original solution?