

The types of problems meant by each keypoint.

This is meant to help in understanding the keypoint list, but the questions are not a list of all of the possible questions. There are many ways that each of these questions can be phrased and these questions may be combined with others, to create a larger question. This is why I avoid writing this type of list, but a student really thought it would help so here it is. I wrote these questions very quickly. I think they are OK but if a problem does not look doable just email me.

1.

a) What is the molar mass of CuSO_4 ?

2.

a) How many grams of CuSO_4 do you need in order to get 0.700 moles of CuSO_4 ?

b) How many moles of CuSO_4 are there is 5.0 grams CuSO_4 ?

3.

a) What is the molarity of a 1500 ml solution that contains 0.988 moles of CuSO_4 ?

4.

a) What is the molarity of a 1500 ml solution that contains 0.988 grams of CuSO_4 ?

5.

a) How many moles of KCl are there in 25.00 ml of a 0.988 M KCl solution?

6.

a) What is the concentration of KCl in a solution made by diluting 5.000 ml of a 0.500 M KCl solution to give a solution with a final volume of 1.000 L?

b) What is the concentration of KCl in a solution made by diluting 5.000 ml of a 0.500 M KCl solution with 995 ml water?

7.

a) What is the concentration of a solution made using 8 grams of Mg and 600 g of water? Give your answer in % by mass.

- b)) What is the concentration of a solution made using 8 grams of Mg and 800 ml of water? (1 g water = 1 ml water) Give your answer in % by mass.
c)) What is the concentration of a solution 1000 g solution made using 8 grams of Mg? Give your answer in % by mass.

8.

a) What is the concentration of PCBs in 5 kg of dirt, if 0.002g of PCBs are found in this sample? Give you answer in ppm.

b) What is the concentration of PCBs in 15 kg of dirt, if 6×10^{-4} g of PCBs are found in this sample? Give you answer in ppb.

9.

a) How many grams of As are there in 3 grams of ash, if the concentration of As in this ash is 90 ppm?

b) How many grams of As are there in 370 grams of ash, if the concentration of As in the ash is 97 ppb?

10.

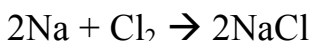
a) What is the mass of a sample that contains 70 mg of Zn, if the concentration of Zn in the sample is 80 ppm?

b) How many grams of a 18% sucrose solution do you need to obtain 17 grams of sucrose?

c) If the concentration of Hg in fish is 78 ppb, how many kg of fish do you need to eat in order to eat 0.03 grams of Hg?

11.

a) Chlorine and sodium react to form sodium chloride. How many moles of sodium will react if 0.900 moles of chlorine react?



b) Chlorine and sodium react to form sodium chloride. How many moles of sodium chloride will be formed if 0.988 moles of chlorine react?

12.

a) How many moles of NaCl will be produced if 0.997 grams of Na react to form NaCl?

b) How many grams of $\text{Mn}_2\text{O}_3(\text{s})$ will be formed when 1.0 grams of CO_2 are created?



13.

a) What is the concentration of KCl in a solution of KCl made by mixing 0.98 g KCl and 500 g water? Give your answer in terms of molarity and mass percent.

b) What is the concentration of KCl in a 1.400 g KCl solution that was made with 5 g of KCl?

14.

a) What is the concentration of boron in a 500 g sample that contains 6.7×10^{-4} moles of boron? (Give your answer in ppm.)