

1.9.7.2: Practice Solution Concentration

Exercise 1.9.7.2.1

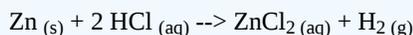
How many grams of glucose (molar mass = 180.18 g/mol) are dissolved in 175 mL of a 2.00 M solution?

Answer

63.1 g. (0.350 moles)

Exercise 1.9.7.2.1

How many mL of 5.25 M HCl solution would be needed to react with 6.00 g of Zn in the reaction below?



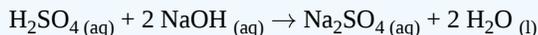
Answer

35.0 mL (0.0350 L, 0.184 moles)

Titration Problems

Exercise 1.9.7.2.1

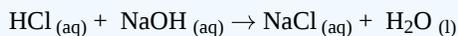
You perform the titration below on 12.00 mL of H_2SO_4 solution. You find that it takes 26.44 mL of 0.4483 M NaOH to react completely. What is the concentration of the H_2SO_4 solution?



Answer

0.4939 M H_2SO_4

You perform the titration below on 20.00 mL of HCl solution. You find that it takes 18.72 mL of 0.3786 M NaOH to react completely. What is the concentration of the HCl solution?



Answer

0.3544 M HCl

You perform the titration below on 15.00 mL of HCl solution. You find that it takes 26.44 mL of 0.1352 M Ba(OH)_2 to react completely. What is the concentration of the HCl solution?



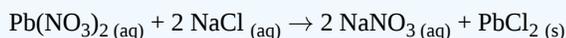
Answer

0.4766 M HCl

Solution Stoichiometry

Exercise 1.9.7.2.1

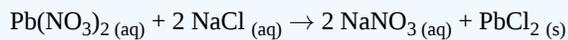
In the reaction below, what volume of 0.7644 M $\text{Pb(NO}_3)_2$ solution is needed in order to make 37.06 g PbCl_2 ? (Molar mass of PbCl_2 is 278.1 g/mol. NaCl is in excess.)



Answer

174.3 mL (0.1743 L)

In the reaction below, what volume of 0.3805 M $\text{Pb}(\text{NO}_3)_2$ solution is needed to react with 455.0 mL of 0.6322 M NaCl solution?



Answer

378.0 mL (0.3780 L)

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