

Review - Solutions/Concentrations Quiz

1) How many liters of a ^{1.50 M LiOH} lithium hydroxide solution can be made from a 1.50 M solution, using 50.0 grams of lithium hydroxide?

$$\frac{1 \text{ L LiOH soln}}{1.50 \text{ mol LiOH}} \times \frac{1 \text{ mol LiOH}}{23.95 \text{ g LiOH}} \times 50.0 \text{ g LiOH} = \boxed{1.39 \text{ L soln}}$$

2) How many grams of MgBr_2 does your chemistry teacher need to add to 500.0 mL to make a solution that is 0.800 Molar?

$$\frac{184.11 \text{ g MgBr}_2}{1 \text{ mol MgBr}_2} \times \frac{0.800 \text{ mol MgBr}_2}{1 \text{ L soln}} \times \frac{1 \text{ L soln}}{1000 \text{ mL soln}} \times 500.0 \text{ mL soln} = \boxed{73.6 \text{ g MgBr}_2}$$

3) Calculate the mass of potassium iodide in a 15.0% solution which has a mass of 1250 g.

$$\frac{15.0 \text{ g KI}}{100 \text{ g soln}} \times 1250 \text{ g soln} = \boxed{188 \text{ g KI}}$$

4) What is the final ^{V_D} volume of a solution if 800.0 mL of a 4.00 M solution of HCl is to be diluted to a concentration of 0.600 M? ^{V_C} ^{M_C} ^{M_D}

$$M_C V_C = M_D V_D$$

$$\frac{(4.00 \text{ M})(800.0 \text{ mL})}{0.600 \text{ M}} = \frac{(0.600 \text{ M}) V_D}{0.600 \text{ M}}$$

$$V_D = \boxed{5330 \text{ mL}}$$

5) Calculate the molarity of a solution of sulfuric acid in which 50.0 grams of sulfuric has been added to 700. cm^3 . \rightarrow 700 mL

$$\frac{1 \text{ mol H}_2\text{SO}_4}{98.09 \text{ g H}_2\text{SO}_4} \times \frac{50.0 \text{ g H}_2\text{SO}_4}{700.0 \text{ mL}} \times \frac{1000 \text{ mL soln}}{1 \text{ L soln}} = \boxed{0.728 \text{ M}}$$