Calculating Concentration

10.0 g of sodium hydroxide dissolved in water to make a total 200. mL of solution. What is the concentration of the solution?

$$10.0\ \cancel{g\ NaOH} \times \frac{1\ mol\ NaOH}{40.00\ \cancel{g\ NaOH}} \times \frac{1}{200.\ \cancel{ml}} \times \frac{1000\ \cancel{mL}}{1\ L} = 1.25\ \frac{mol}{L} = 1.25\ M$$

Calculate the volume of a 0.20 *M* solution made from 12.3 g of lithium sulfate.

$$12.3\ \cancel{g\ Li_2SO_4} \times \frac{1\ \cancel{mol\ Li_2SO_4}}{109.95\ \cancel{g\ Li_2SO_4}} \times \frac{1\ L}{0.20\ \cancel{mol\ Li_2SO_4}} = 0.56\ L\ solution$$