

1. How many millimoles (mmol) of potassium ion are in 10.0 mL of 0.1250 *M* potassium carbonate solution?
2. How many g of sodium hydroxide are needed to make 250 mL of 0.1250 *M* sodium hydroxide solution using a volumetric flask?
3. How many mL of 0.1250 *M* NaOH solution are required to make 15.0 mL of 0.0100 *M* NaOH solution?
4. What is the molar concentration of ammonium ion in a solution that is made by adding 30.0 mL of water to 50.0 mL of a 0.1250 *M* ammonium phosphate solution?
5. How many grams of ammonium phosphate is in the solution made in (4)?
6. How many mL of 0.15 *M* potassium carbonate are required to make 100 mL of 0.03 *M* potassium ion solution by dilution?
7. How many mg of silver(II) chloride is required to make 100 mL of a 15 ppm solution of silver?
8. If a patient is found to have a blood Pb concentration of 70 ppb, do they have an “elevated blood lead level” according to the National Institute for Occupational Safety and Health (NIOSH)?
9. Based on reports by the City of Northfield, roughly how many micrograms of Ba are\* in a 12-oz glass of water from the Caf?
10. Describe how you would make 100.00 mL of a reference solution that contains the maximum allowed level of mercury in drinking water (MCL, to 2 significant digits) in the US using solid mercury(II) chloride, an analytical balance (that reads to 0.0000 g), and whatever combination of volumetric flasks and pipets you like, in the range 10.00 mL, 100.00 mL, 250.00 mL, and 1.00 L. Try to do this with the minimum of mercury possible. [Hint: Google *serial dilution*.]

10. lots of possible answers here.

8. 30 mg

8. yes. That's 2 mg<sup>100</sup>, which is higher than 2 mg<sup>100</sup>

Δ: 1.2 mg

9. 10 mg

2. 0.035 g

4. 0.534 M

3. 1.50 mg

5. 1.520 g

1. 5.20 <sup>1000</sup>mg

Answers