

1. Calculate the molarity of the solution obtained by mixing 75.0 mL of 0.150 *M* CuSO₄ with 25.0 mL of 0.100 *M* CuSO₄.
2. Mass spectrometry showed that thallium is a mixture of two isotopes, Tl-203 and Tl-205, and that for every million atoms of Tl-203 there are 2.38983 million Tl-205 atoms. The mass of Tl-203 is 202.9723 amu and that of Tl-205 is 204.9745 amu. Calculate the atomic weight of thallium (check your answer with the atomic weight given in the periodic table in your textbook).
3. What volume of 0.155 *M* NaOH must be added to 250 mL of water to make 0.100 *M* NaOH?
4. What volume of 0.155 *M* NaOH must be added to 100 mL of 0.585 *M* NaOH to make 0.300 *M* NaOH?
5. One way to determine Avogadro's number is to measure the number of electrons required to plate out a known mass of a metal. It is found that 894.5 coulombs are required to form 1.000 g of silver from Ag⁺ ions. Using the known atomic mass of silver and the charge of the electron in coulombs given in this chapter, calculate the number of atoms in one mole of Ag. (N.B.: One electron will react with one Ag⁺ to form one Ag atom)