1. What is concentration of final solution made from 1 micro molar per litre stock solution which is taken 0.5 ml and volume of final solution is 2.5 ml

Solution

Concentration of stock solution equals to 1 micromole per litre, so 0.5 ml of solution contains $n_1 = C_1*V_1 = 1*10^{-6}$ mol/L * 0.5 * 10^{-3} L = $5*10^{-10}$ mol. This amount of stock solution diluted to a final volume V_2 = 2.5 ml, so final concentration $C_2 = n_1/V_2 = 5*10^{-10}$ mol / 2.5 * 10^{-3} L = $2*10^{-7}$ M or 0.2 micromol/L.

Answer

Final concentration $C_2 = 2*10^{-7}$ M or 0.2µM.