Dilution calculations

Dilution questions

1) 10 cm^3 of a stock solution with concentration, C = 0.026 mol dm^{-3}, was pipetted and made up to 100 cm^3. What was the concentration of the final solution?

2) Starting with a stock solution with concentration, C = 0.200 mol dm^{-3}.
Prepare a solution, V = 100 cm^3 with C = 0.010 mol dm^{-3}.
Calculate the volume of stock solution required.

3) 5 cm^3 of a stock solution with concentration, C = 0.084 mol dm^{-3}, was pipetted and made up to a volume of V cm^3. If the final solution had a concentration of 2.1 mmol dm^{-3}, what was the value of the volume, V cm^3?

4) An initial solution was diluted 1:200, giving a final concentration of 1.30 µg cm^{-3}.
What was the concentration of the initial solution?

5) A serial dilution involves pipetting 5 cm^3 of solution and making it up to 100 cm^3 each time. If the concentration of the initial solution was 0.260 mol dm^{-3}, what was the concentration after three dilution operations? Give your answer in units of µmol dm^{-3}.