

Dilution Problems via Words

1. Your partner serially diluted a sample 9 times at 1:10. She spread plated 0.1 ml, in triplicate, dilutions 8 and 9. The following day she counted for dilution 9, 64, 53, 71 colonies, and for dilution 8 she estimated 488, 801, 676 colonies. Diagram your dilution scheme (include the volumes used and give the dilution for each step) and calculate the starting cell concentration of the sample (show your work).
2. You need to dilute a sample. Your stock of dilution blanks are down to 3 -4.5 ml, 1- 90 ml, 1- 99 ml, and one 9.9 ml. You decide to do two 1:100 followed by four 1:10 dilutions. After pour plating 0.5 ml from the sixth dilution, 1.0 ml from the fifth, and 0.1 from the fourth dilutions you count the next day 17, 81, and 88 colonies respectively. Diagram your dilution scheme (include the volumes used and give the dilution for each step) and calculate your sample's cell concentrations.
3. You dilute a sample in the following order: 1:1000, 1:100, 1:100, 1:10, and 1:10. Diagram your dilution scheme used (include the volumes used and give the dilution for each step). You spread plate 0.2 ml from your fifth dilution and 0.1 ml from your fourth dilution. After incubation you count 132 and 308 colonies respectively. **a)** Calculate the cfu/ml of the sample (show your work) and **b)** A spectrophotometric reading of the sample inferred that it had 22.5% more CFU/ml than your plating showed. Why did this happen and what would the concentration be if the spectrophotometer reading was correct?