CASE STUDY 1

1. A patient was given a bolus i.v. injection of 1000mg of a drug. When the plasma concentration (Cp) was assayed, the following data was obtained:

Time t[min]	Cp[mg/L]
5	32.7
10	32.0
15	31.3
25	30.0
50	27.1
100	22.0
150	17.8
200	14.5
250	11.8
300	9.55
355	7.95
400	6.30
500	4.15
600	2.74
800	1.19
1000	0.52

Calculate AUC by trapezoidal rule and determine Vd.

2. What factors lead to a small volume of distribution? What is the smallest (theoretically) possible volume distribution of a drug?

3. 70-90% of quinidine is bound to plasma albumin and alpha-1-acid glycoprotein. In patients with chronic liver disease plasma protein binding is decreased by 20%. How will the volume of distribution change? (Use a plasma volume of 3 L and a tissue volume of 38 L. The fraction unbound in tissue is 70%.)