

Homework 2

Bio pharmaceutics & Pharmacokinetics/PHAR434

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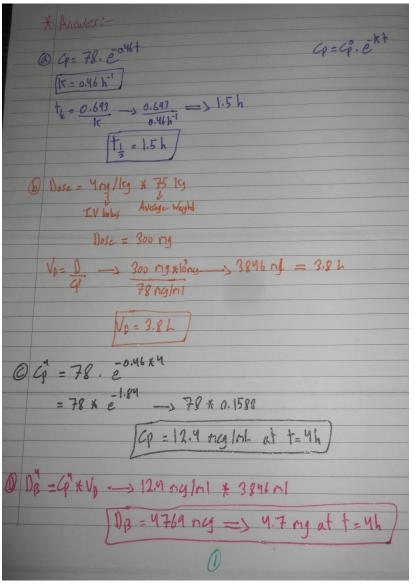
A new antibiotic drug was given in a single intravenous bolus of 4 mg/kg to 5 healthy male adults ranging in age from 23 to 38 years (average weight 75 kg). The pharmacokinetics of the plasma drug concentration—time curve for this drug fits a one-compartment model. The equation of the curve that best fits the data is:

Determine the following (assume units of mcg/mL for Cp and hours for t):

- **a.** What is the t1/2?
- **b.** What is the *V*D?
- **c.** What is the plasma level of the drug after 4 hours?

$$C_{\rm p} = 78e^{-0.46t}$$

- **d.** How much drug is left in the body after 4 hours?
- **e.** Predict what body water compartment this drug might occupy and explain why you made this prediction.
- **f.** Assuming the drug is no longer effective when levels decline to less than 2 *mc*g/mL, when should you administer the next dose?



-	D Avorage weight = 75 kg
	Vp = 3.8h = 3.8kg ; because 70% of body is vator
	1 body wt = 2.8 kg x 100 % or blood
	17. BV = 5.1 %
	Vp convert to ky obecause its equal or approx to plasma volume (70% Has)
Ø.	We need to find the time (t).
6	Cp = Cp. e-0.46+
2	Ing/n1 = 78, e . 46+ (x log)
100	$92 = \log 780 - 0.46 + \frac{0.46 + 0.46}{2.3}$
	3 = 1.9 - 0.2 +
0.2	2+=1.4-0.3 -> +=8h
	[t=8h]