

PHA5127 – Fall 2005
Homework #5 (10 points)

Please show all your calculations and make sure your numerical answers have units.

1. Benjamin is given an i.v. bolus injection of Drug A. Below are the properties of the drug:

Volume of distribution	440 L
Clearance	130 mL/min
Therapeutic range	1 – 2 mg/L

Calculate a dosing regimen (multiple IV doses) that will maintain the serum drug concentrations within the therapeutic range.

2. For the following scenarios for a multiple dose i.v. bolus therapy, determine what will happen to the average steady-state concentration, the peak concentration, and the fluctuation. Use arrows to indicate if it increases, decreases or stays the same.
- The clearance is doubled.
 - The volume of distribution is halved.
 - The dose is doubled.
 - The number of doses given per a day is halved.

	$C_{avg,ss}$	C_{max}	F
a) CL			
b) V_d			
c) D			
d) # of D			

3. True/False: Please state if each of the following is true or is false.
- The shorter dosing interval, the higher steady state average concentration.
 - The higher half-life, the larger fluctuation.
 - The shorter the half-life, the smaller degree of accumulation.
 - The longer dosing interval, the longer to achieve steady state.