1. K.L., a 51-year-old, 70-kg man, was admitted to the coronary care unit with a diagnosis of heart failure, probable myocardial infarction. Calculate a bolus dose that achieves *lidocaine* plasma level of 4mg/L which should achieve an immediate response.

(Note: Lidocaine is available as lidocaine hydrochloride).

Calculate a maintenance infusion rate of that will achieve a steady-state lidocaine concentration of 4 mg/L. (2 points)
2. A 34 year old male patient weighing 68 kg, has been taking uncoated (rapidly absorbed) theophylline tablets, 200 mg q6h, with satisfactory response. Recently, steady-state theophylline plasma concentrations were determined to be 20.0 mg/L 30 minutes after administration (peak) and 10.0 mg/L 6 hours after administration (trough). Please estimate the average steady-state theophylline concentration with this regimen. (For this case, assume that F=1.) (2 points)
3. E.W. is a 72 years old, 69 kg male with serum creatinine of 1.2 mg/dL. He is treated with procainamide because of tachyarrhythmia. Calculate the half-life of procainamide in this patient. (Vd = 2 L/kg) (2.5 points)
4. A liver transplant patient at Shands hospital has been treated with IV infusion of 250 mg/day of **cyclosporine** for a certain time. His plasma concentration at steady state is 200 ng/mL. Since he is doing fine, the physician would like to change IV infusion to orally administration and decrease the desired steady state concentration by 10%. What is the reasonable dose for oral treatment? (The bioavailability of oral cyclosporine is 0.3) (1.5 points)
5. L.T. is a 27 years old, 51 kg female patient receiving aminophylline with maintenance infusion rate of 25 mg/h (S=0.8). Her **theophylline** level is 10 mg/L. However, she needs to take ciprofloxacin at the same time (Factor=0.7). What is the maintenance infusion rate to keep the same theophylline level? (2 points)