Drug Y is administered via IV infusion at 300 mg to RH, a 55-year old patient with 72 kg body weight. The average steady-state concentration of Drug Y is approximately 160 ng/mL. What would be an appropriate oral dose of Drug Y so that RH’s average blood concentration at steady-state is approximately 215 ng/mL. Assume that oral bioavailability of Drug Y is 0.4 and the dosing interval for IV infusion and oral dosing are the same. (1 pt)
A patient was administered 800 mg of Drug X over 20 min (iv infusion) from 9:40 to 10:00 am. The serum levels of Drug X were measured at specific time: 24.3 μg/mL at 11:00 am and 5.3 μg/mL at 10:00 am the following day. Assuming STEADY-STATE with interdosing interval of 36 h and a one-compartment body model for Drug X, compute the following:

(1) Elimination rate constant (1 pt)

(2) Half-life (0.5 pt)

(3) Peak drug concentration at 10:00 am of the same day of dosing (0.5 pt)

(4) Drug concentration at 9:30 pm of the following day (0.5 pt)

(5) The volume of distribution (1 pt)

(6) The drug clearance (1 pt)
Phenobarbital is an inducer of drug metabolic enzymes. When propranolol, a high-extraction drug, is combined with phenobarbital, what is expected of the half-life of propranolol. Show equation(s) as evidence to support your claim. (2 pts)
Drug Z is eliminated entirely by the liver (hepatic metabolism), with a clearance of 75 L/h in subjects with an average liver blood flow of 80 L/h. Estimate the clearance in congestive heart failure patients with a liver blood flow of 50 L/h, assuming no change in hepatic extraction ratio. (2.5 pts)