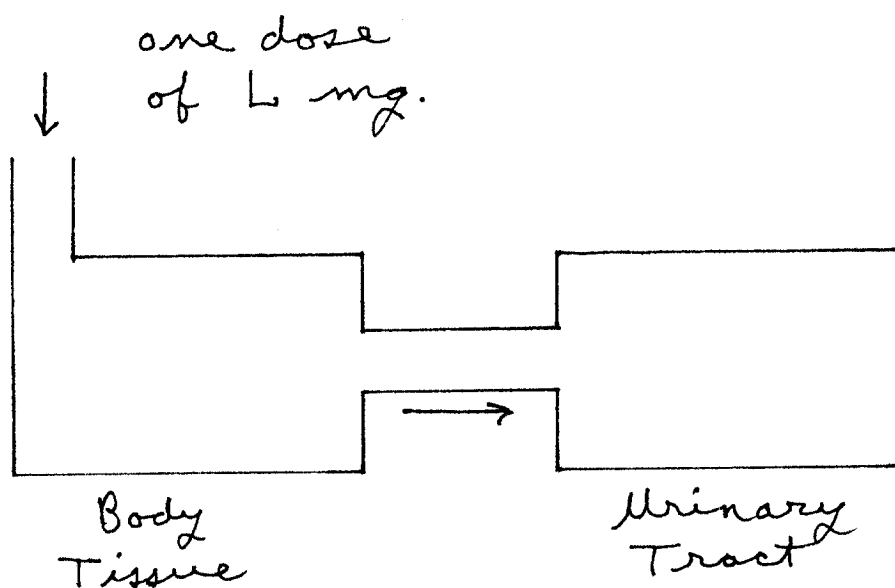


Assume that a drug is administered to a person in a single dose via injection or ingestion. Assume that the drug does not accumulate in the body, but instead is exponentially removed from the body tissue into the urinary tract and removed from the body.

Let  $x_1$ : mg. of drug in body at time  $t$   
 $x_2$ : mg. of drug in urinary tract at time  $t$



$$\begin{cases} \frac{dx_1}{dt} = -kx_1, & x_1(0) = L \text{ mg.} \\ \frac{dx_2}{dt} = kx_1, & x_2(0) = 0 \text{ mg.} \end{cases}$$

Assume  $x_1 + x_2 = L$ .