

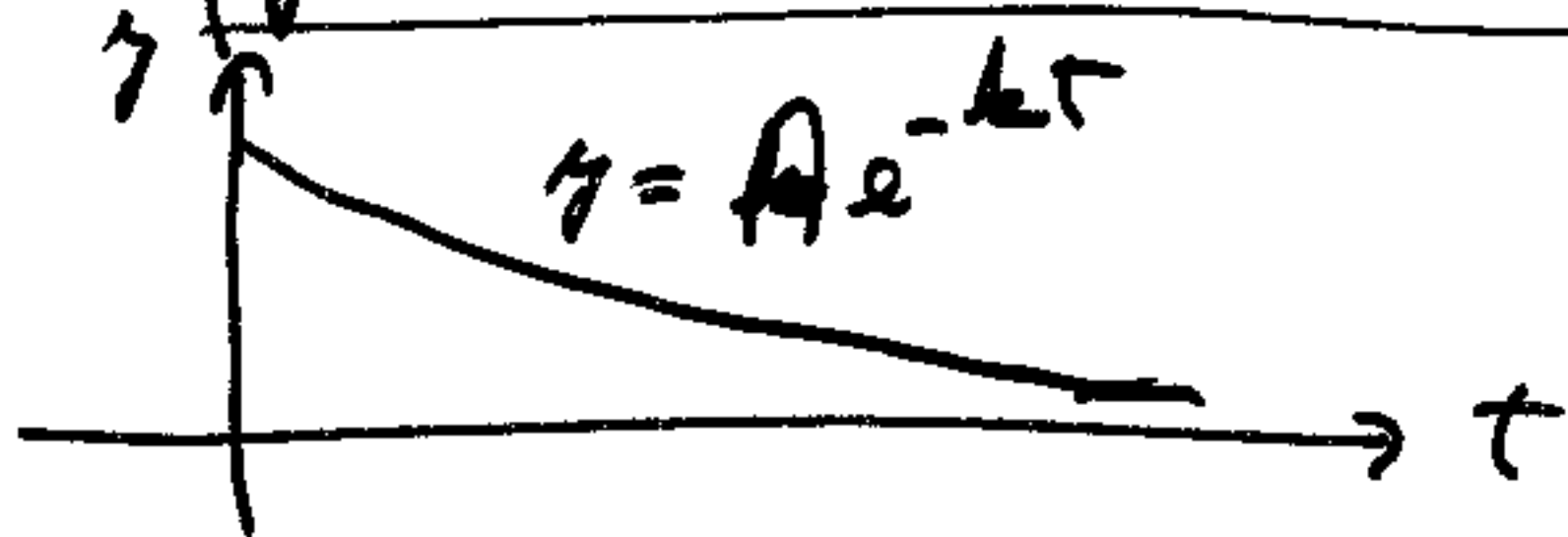
$y = y(t)$ = ^{CONCENTRATION of} amount in blood at time t .

$$\frac{dy}{dt} = -ky \quad (k \text{ constant.})$$

$$\frac{dy}{y} = -k t dt \quad \text{or} \quad \int \frac{dy}{y} = \int -k t dt$$

$$\ln y = -kt + C \quad (C \text{ const.})$$

$y = e^C e^{-kt} = A e^{-kt}$

 $(A = e^C)$


t in hours. $\frac{1}{2}$ life is 200 hours.

$$y(0) = A e^{-k \cdot 0} = 2A e^{-k \cdot 200} \quad (= y(200))$$

$$A = 2A e^{-k \cdot 200}$$

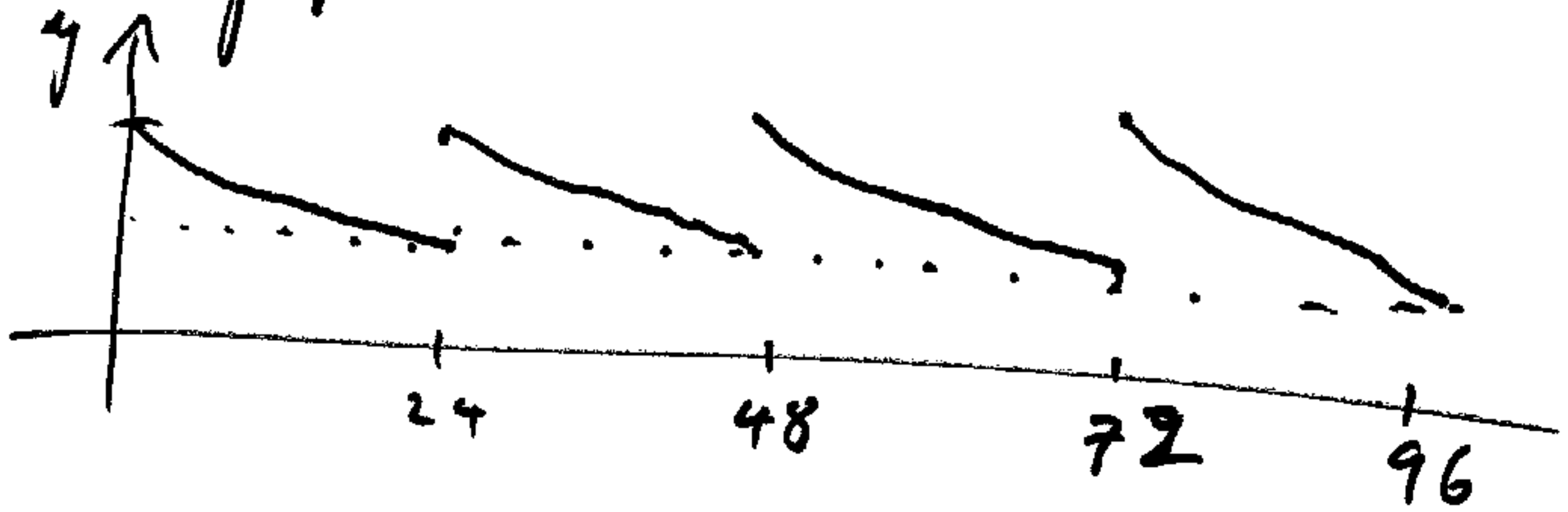
$$e^{k \cdot 200} = \frac{2}{2} = 2$$

$$k = \frac{\ln 2}{200}$$

$$y = A e^{-\frac{\ln 2}{200} t}$$

NOW ASSUME A DOSE IS ADMINISTERED EVERY 24 HOURS. This gives a spike once a day:

New graph.



Dose is set to return concentration to a desired "THERAPEUTIC RANGE".