25. First-order chemical reactions In some chemical reactions, the rate at which the amount of a substance changes with time is proportional to the amount present. For the change of δ -glucono lactone into gluconic axid, for example,

 $\frac{dy}{dt} = (-0.6y)$

when t is measured in hours. If there are 100 grams of δ -glucono lactone present when t = 0, how many grams will be left after the first hour?

y(t): amount of lactor available at time to

Kt

y(t)=yee

$$y(t) = 100 e^{-0.6t}$$

$$y(1) = 100 e^{-0.6(1)}$$

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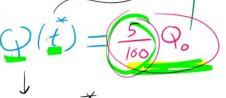
36. Polonium-210 The half-life of polonium is 139 days, but your sample will not be useful to you after 95% of the radioactive nuclei present on the day the sample arrives has disintegrated. For about how many days after the sample arrives will you be able to use the polonium?

T = 139 $T = \frac{\ln 2}{K}$

$$=\frac{\ln z}{139}$$

Find time to such that

KKO



use 5 % -> necus 95%

De (wy

