Half life in radioactivity

Time period of decay of half radio active atoms

Notation for half life in radioactivity

$$t = T_{\frac{1}{2}}$$

Derivation for expression of relation of half life with decay constant

- $$t = T_{\frac{1}{2}}$$
- $$N = \frac{N_0}{2}$$
- $$\frac{N_0}{2} = N_0 e^{-\lambda T_{\frac{1}{2}}}$$
- $$\frac{1}{2} = e^{-\lambda T_{\frac{1}{2}}}$$
- $$e^{\lambda T_{\frac{1}{2}}} = 2$$
- $$\lambda T_{\frac{1}{2}} = \log_e(2)$$
- $$T_{\frac{1}{2}} = \frac{\log_e(2)}{\lambda}$$
- $$T_{\frac{1}{2}} = \frac{0.693}{\lambda}$$

Expression for half life at radioactivity

$$T_{\frac{1}{2}} = \frac{0.693}{\lambda}$$