



$$U(t) = U_0 \cdot e^{-kt}$$

$$\frac{U_0}{2} = U_0 \cdot e^{-kt_{1/2}}$$

$$\frac{1}{2} = e^{-kt_{1/2}}$$

$$\ln \frac{1}{2} = -k \cdot t_{1/2}$$

$$-\frac{\ln(2)}{t_{1/2}} = -k$$

$$U(t) = U_0 \cdot e^{-\frac{\ln(2)}{t_{1/2}} \cdot t}$$

$$= \frac{\ln(2)}{30s} \cdot t$$

$$U(t) = 90V \cdot e^{-\frac{\ln(2)}{30s} \cdot t}$$

