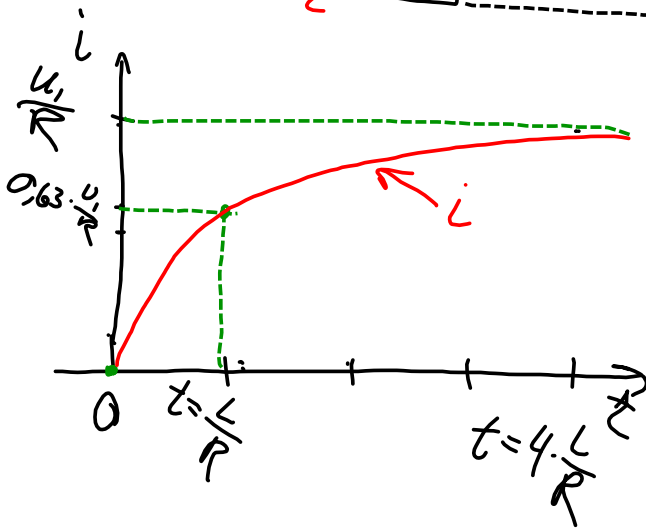
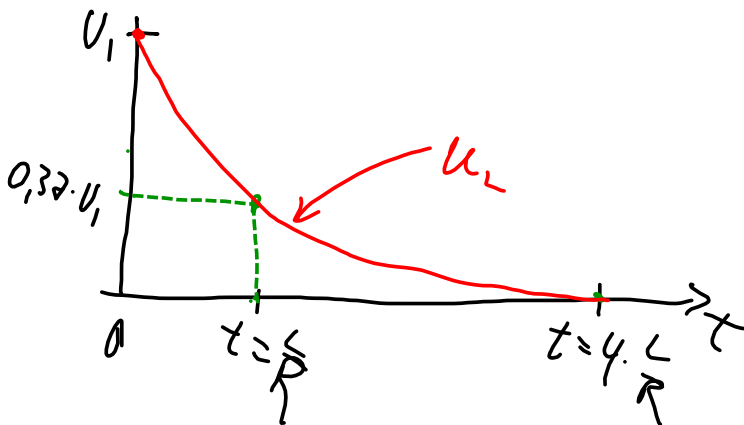


$$i(t) = \frac{U_1}{R} (1 - e^{-\frac{R}{L}t})$$



$$U_L = U_1 - U_R = U_1 - i \cdot R$$



$$t=0 \quad e^{-0} = 1$$

$$\frac{U_1}{R} (1 - e^{-0}) = 1 - 1 = 0$$

$$t = \frac{L}{R} \quad e^{-1} = 0,37$$

$$\frac{U_1}{R} (1 - e^{-1}) = 0,63 \cdot \frac{U_1}{R}$$

$$t = 4 \cdot \frac{L}{R} \quad e^{-4} = 0,02$$

$$\frac{U_1}{R} (1 - e^{-4}) = \frac{U_1}{R} \cdot 0,98$$

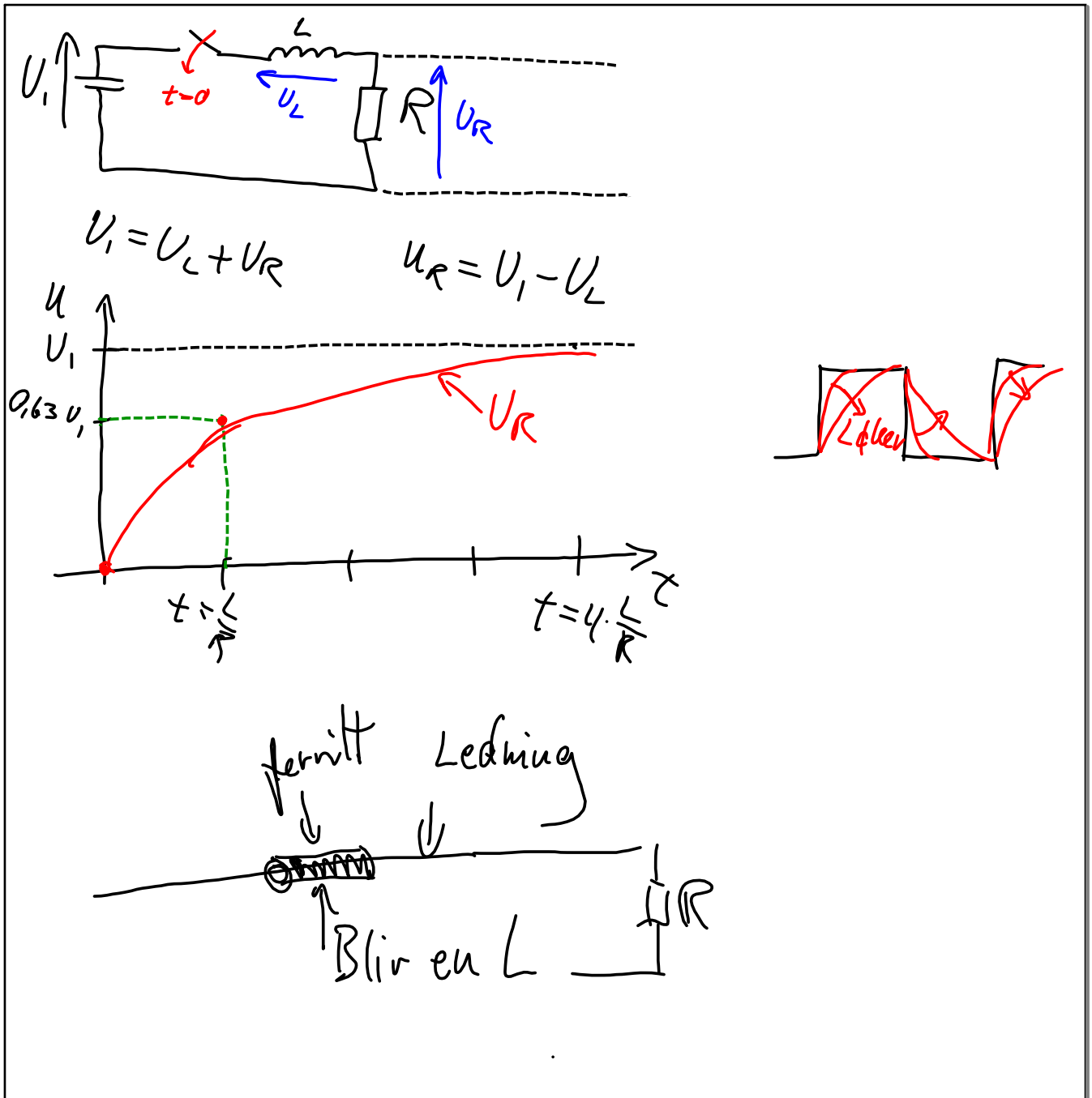
$$i=0 \quad U_L = U_1 - 0 = U_1$$

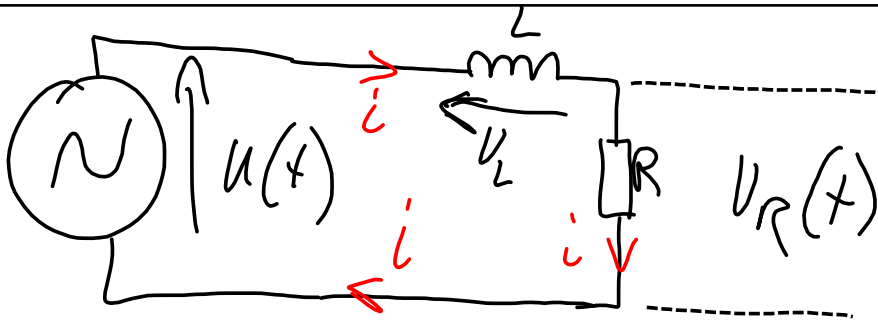
$$t = \frac{L}{R} \quad U_L = U_1 - 0,63 \cdot \frac{U_1}{R} \cdot R$$

$$= 0,37 \cdot U_1$$

$$t = 4 \cdot \frac{L}{R} \quad U_L = U_1 - 0,98 \cdot \frac{U_1}{R} \cdot R$$

$$= 0,02 \cdot U_1$$





$$u(t) = a \cdot \sin 2\pi f t \quad Z_L = j 2\pi f L$$

$$\downarrow u_1 \quad i = \frac{u_1}{Z_L + R} \quad u_R = i \cdot R$$

$$u_R = \frac{u_1}{Z_L + R} \cdot R$$

$$\frac{u_R}{u_1} = \frac{R}{Z_L + R} = \frac{R}{j 2\pi f L + R} = \frac{1}{1 + j 2\pi f \frac{L}{R}}$$

$$f_g = \frac{1}{2\pi \frac{L}{R}} = \frac{R}{2\pi L}$$

LP-filter

$1 = 2\pi f_g \frac{L}{R}$



Finu: $\frac{U_L}{U_1} = Z$

Tegn kurven



$\frac{U_R}{U_1} = Z$