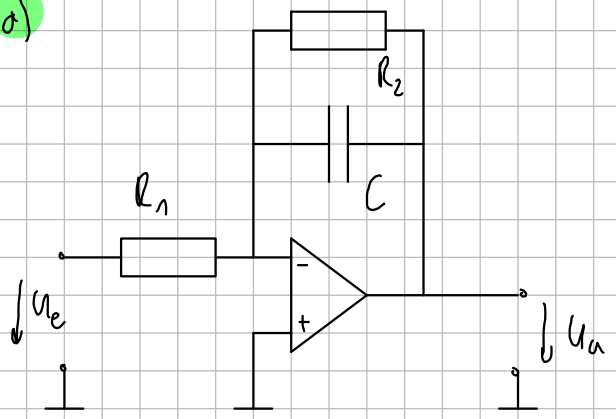
a)




b) $\frac{-10}{1+\frac{j2\pi f}{1\text{kHz}}}$

$$G = \frac{U_a}{U_e} = \frac{-R_2 \| C}{R_1} \rightarrow \frac{-R_2 \cdot \frac{1}{j\omega C}}{\frac{R_2 + \frac{1}{j\omega C}}{R_1}}$$

$$= \frac{-\frac{R_2}{j\omega C R_2 + 1}}{R_1} = -\frac{R_2}{j\omega C R_2 R_1 + R_1}$$

$$= -\frac{R_2}{R_1} \cdot \frac{1}{j\omega C R_2 + 1}$$

$\frac{R_2}{R_1} = 10$

$j\omega C R_2 + 1 = \frac{1}{1\text{Hz}}$

$$R_2 = 10 R_1$$

$$C = \frac{1}{1000 R_2}$$