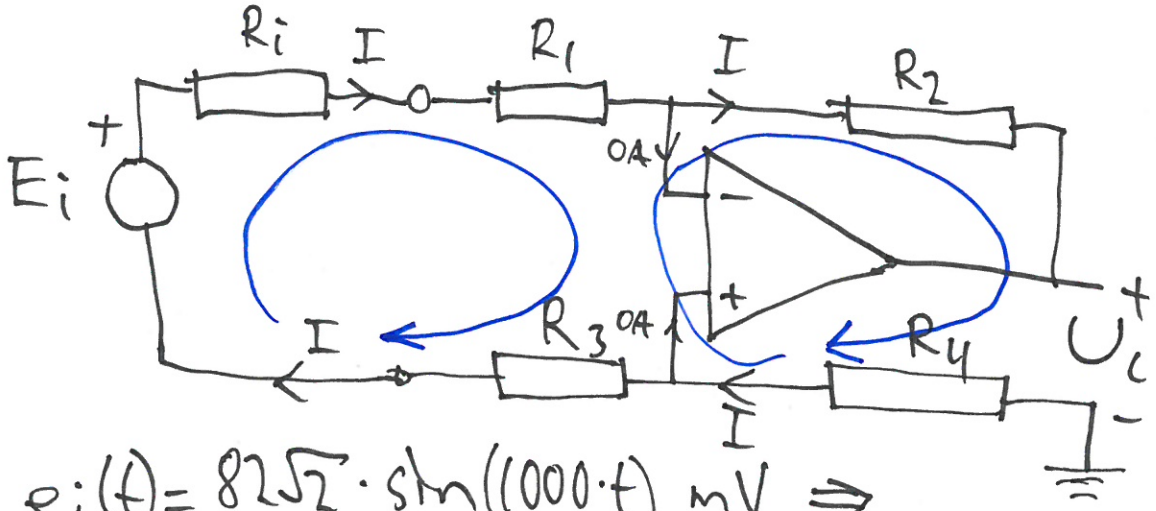
F 1-5) Lösning med "reell jw-analys":

(komplex)schema:

$R_1 = 12k\Omega$
$R_2 = 270k\Omega$
$R_3 = 12k\Omega$
$R_4 = 270k\Omega$
$R_i = 33k\Omega$



$e_i(t) = 82\sqrt{2} \cdot \sin(1000 \cdot t)\ mV \Rightarrow$

$E_i = 82 \cdot \sqrt{2}\ mV$

$$E_i - R_i \cdot I - R_1 \cdot I - R_3 \cdot I = 0 \quad (1)$$

$$-R_2 \cdot I - U_c - R_4 \cdot I = 0 \quad (2)$$

$$(1) \Rightarrow I = \frac{E_i}{R_i + R_1 + R_3}$$

$$(2) \Rightarrow U_c = -(R_2 + R_4) \cdot I$$

$$(1),(2) \Rightarrow U_c = \frac{-(R_2 + R_4)}{R_i + R_1 + R_3} \cdot E_i = \frac{-(270k + 270k)}{33k + 12k + 12k} \cdot 82\sqrt{2}\,m =$$

$$-\frac{540k}{57k} \cdot 82\sqrt{2}\,m = -0.78 \cdot \sqrt{2}$$

$\Rightarrow$

$$\boxed{u_c(t) = -0.78 \cdot \sqrt{2} \cdot \sin(1000 \cdot t)\ V}$$