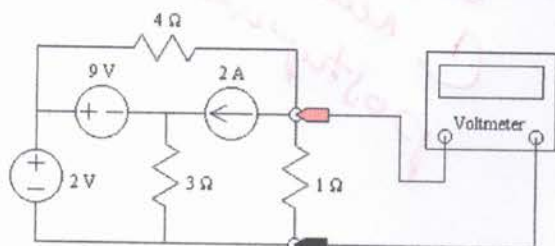
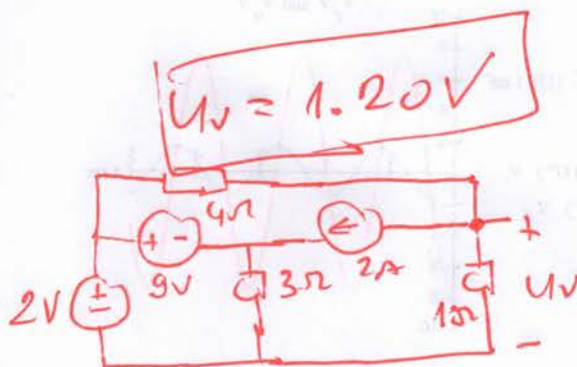


LABORATORIJA 2020 - TEORIJA ELEKTRIČNIH KOLA. PRIMJER

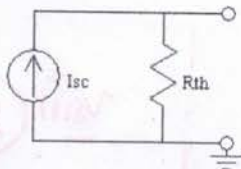
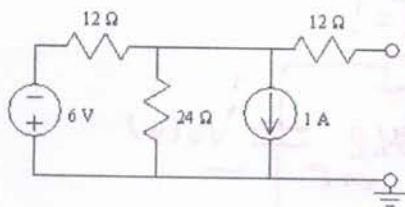
Zadatak 1: U kolu prikazanom na slici voltmetar mjeri napon u voltima.



Kolika je vrijednost napona koju pokazuje voltmetar?

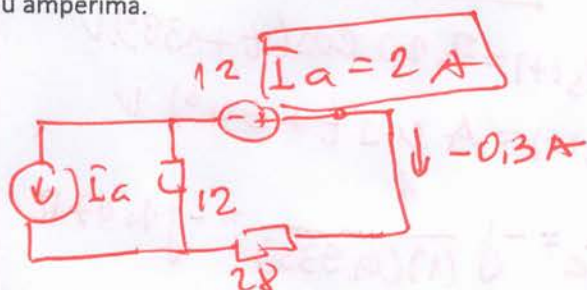
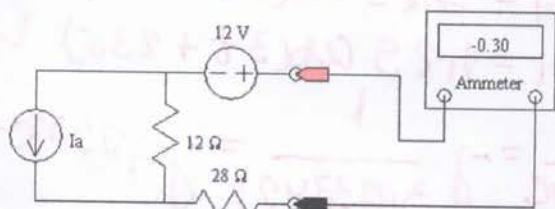


Zadatak 2: Kolika je vrijednost struje ekvivalentnog Nortonovog generatora?



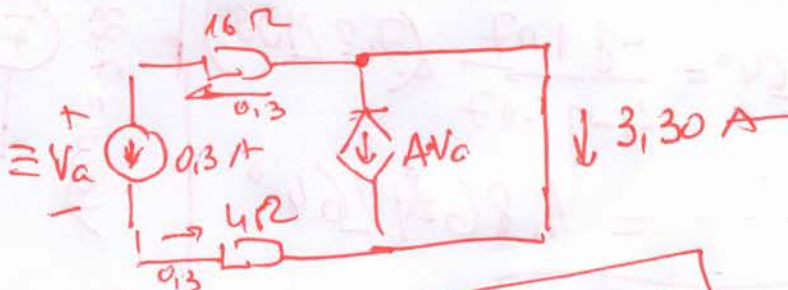
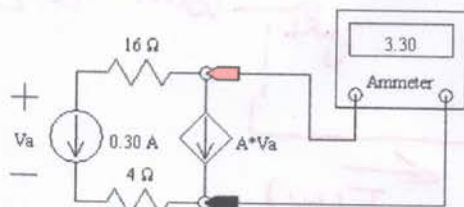
$$I_{sc} = -0.60 \text{ A}$$

Zadatak3: U kolu prikazanom na slici ampermetar mjeri struju u amperima.



Kolika je vrijednost struje nezavisnog strujnog generatora Ia?

Zadatak4: U kolu prikazanom na slici ampermetar mjeri struju u amperima.



Kolika je vrijednost konstante A NKSI?

$$A = 0.6$$

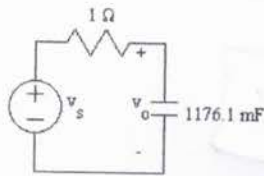
NAPOMENA:

Crveni prikružak kod voltmetra označava točku višeg potencijala a kod ampermetra kraj od kog teče struja kroz ampermetar.

Poslediti primjore!!!

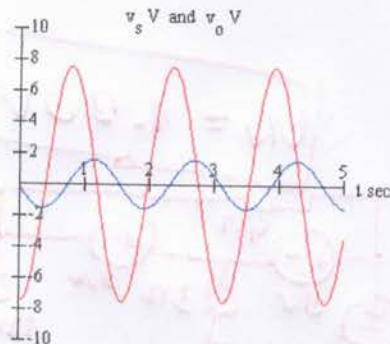
Zadatak5: Kolika je vrijednost amplitude A napona $v_o(t)$?

Umjesto
C može biti i
postupak 15 h

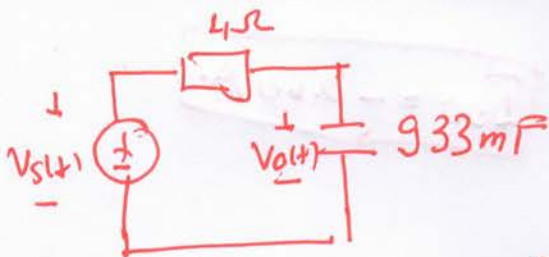


$$v_s(t) = 7.54 \cos(4t + 177^\circ) \text{ V}$$

$$v_o(t) = A \cos(4t + 99^\circ) \text{ V}$$



VAŠ ZADATAK JE DA KONAČNE ODGOVORE UPIŠETE U POLJA PREDVIĐENA ZA UNOS:



$$v_s(t) = 7.20 \cos(t + 139^\circ) \text{ V}$$

$$v_o(t) = A \cos(t + 64^\circ) \text{ V}$$

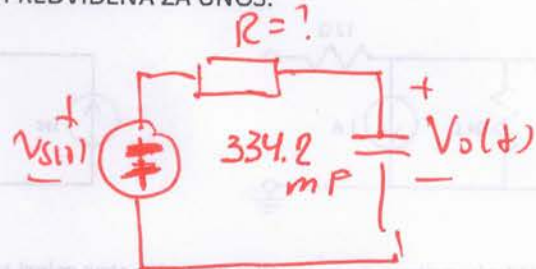
$$-j \frac{1}{\omega C} = -j \frac{1}{(1)(0.933)} = -j 1.07 \Omega$$

Ako primijenimo dvije teže
napone

$$A \angle 64^\circ = \frac{-j 1.07}{4 - j 1.07} (7.2 \angle 139^\circ)$$

$$\dots = 1.864 \angle 64^\circ$$

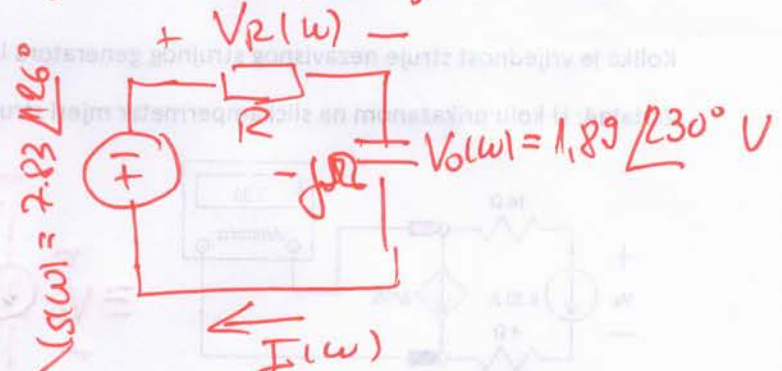
$$\boxed{A = 1.864}$$



$$v_s(t) = 7.83 \cos(3t + 126^\circ) \text{ V}$$

$$v_o(t) = 1.89 \cos(3t + 230^\circ) \text{ V}$$

$$-j \frac{1}{\omega C} = -j \frac{1}{3(0.3342)} = -j 0.999 \Omega$$



$$I(\omega) = \frac{V_o(\omega)}{-j} = 1.89 \angle 320^\circ \text{ A}$$

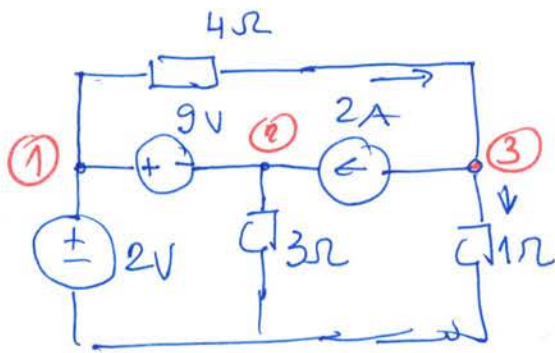
$$V_R(\omega) = -V_s(\omega) - V_C(\omega)$$

$$= 7.597 \angle 40^\circ$$

$$R = \frac{V_R(\omega)}{I(\omega)} = \frac{7.597 \angle 40^\circ}{1.89 \angle 320^\circ} = 4.02 \angle -360^\circ$$

$$\boxed{R \approx 4 \Omega}$$

Zadatak 1.



$$U_V = -1,2V$$

$$U_V = V_3$$

$$2V = V_1 - 0 \Rightarrow V_1 = 2V$$

$$9V = V_1 - V_2 \Rightarrow V_2 = -7V$$

I.K.Z. to čvor ③

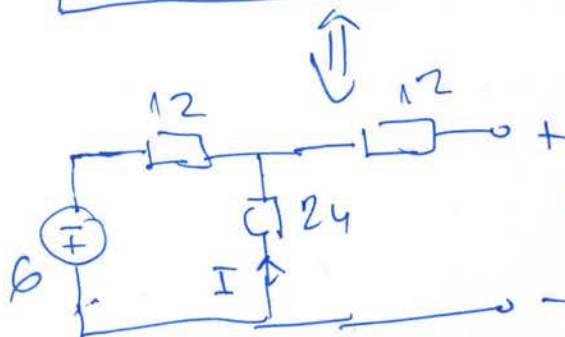
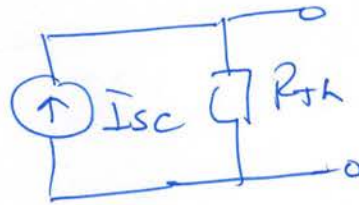
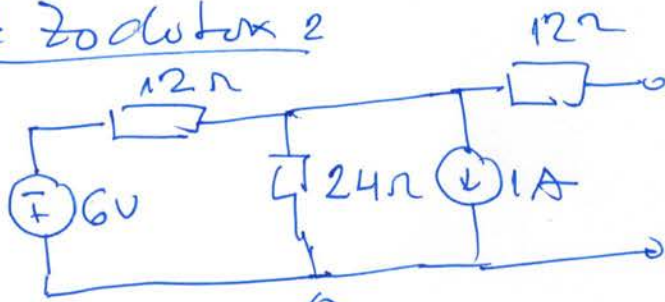
$$\frac{V_1 - V_3}{4} = \frac{V_3}{1} + 2$$

$$\frac{2}{4} - 2 = V_3 + \frac{V_3}{4}$$

$$-\frac{3}{2} = \frac{5}{4} V_3 \Rightarrow V_3 = -\frac{3 \cdot 4}{2 \cdot 5}$$

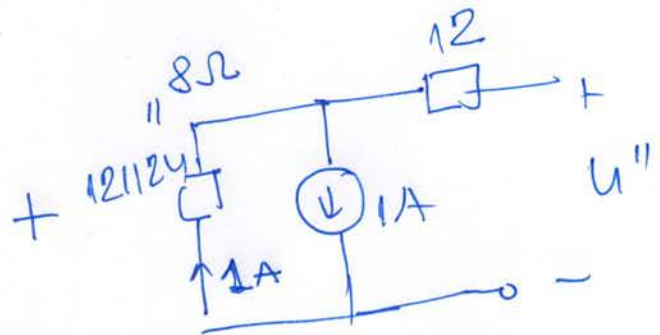
$$V_3 = -\frac{12}{10} = -1,2$$

Zadatak 2



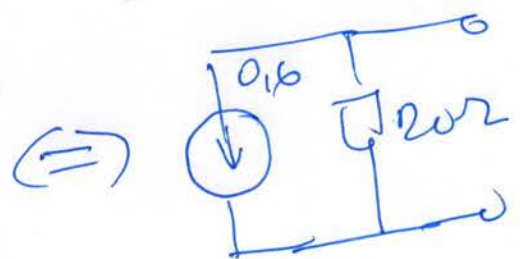
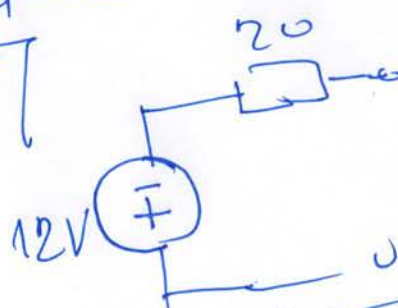
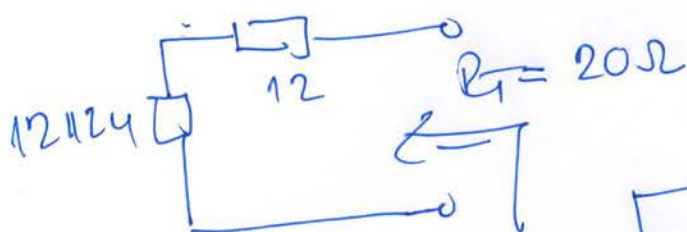
$$I = \frac{6}{36} = \frac{1}{6} A$$

$$U' = -\frac{1}{6} \cdot 24 = -4V$$



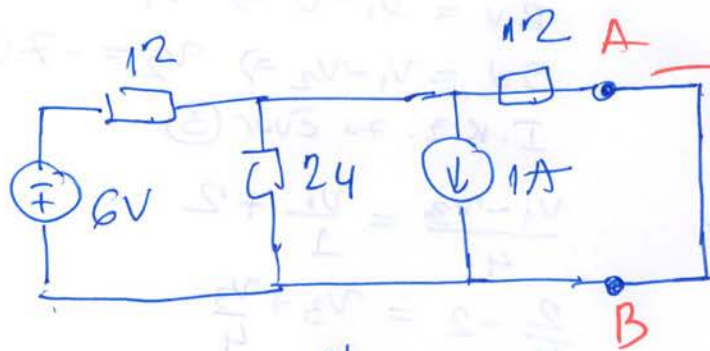
$$U'' = -8V$$

$$U = U' + U'' = -12V$$

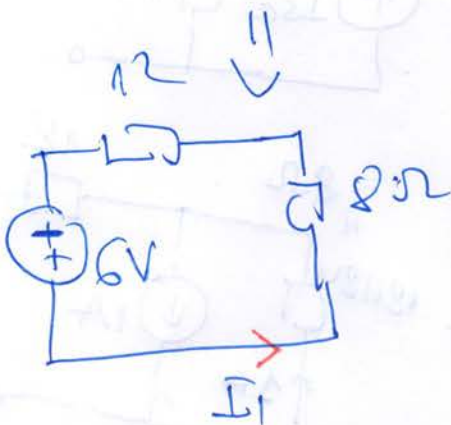
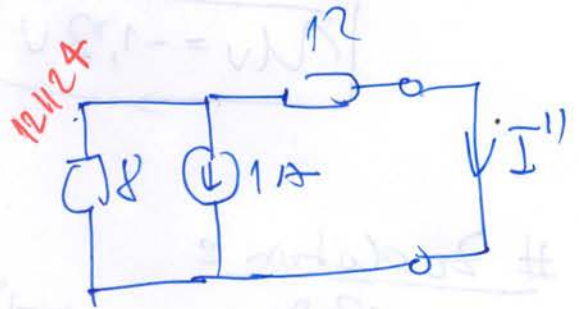
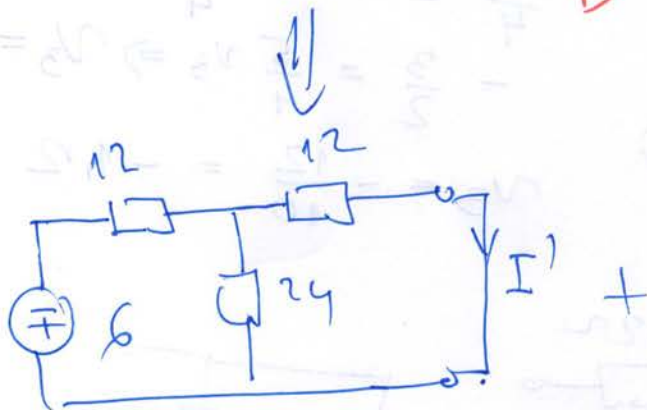


$$I_{K5} = -0,6 A$$

Ako je strma direktno:



od $A \rightarrow B$
smjer I_{KS} !!!



$$I'' = 1 \cdot \frac{8}{12+8}$$

sdrujni rozdelen

$$I'' = -0,4$$

$$I_{KS} = I'' + I'$$

$$I_{KS} = -0,6$$

$$I_1 = \frac{6}{20} = 0,3$$

$$I' = -\frac{0,3 \cdot 24}{36}$$

-sdrujni rozdelen

$$I' = -0,2$$

W