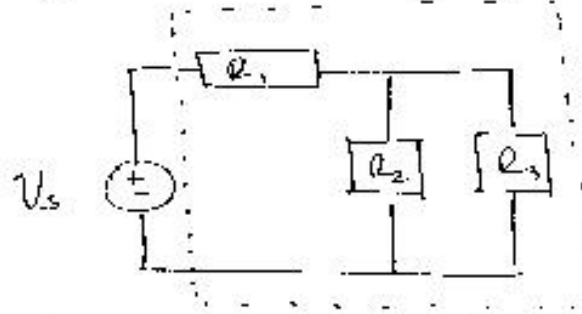


03 R_1 R_2 R_3 R_1, R_2, R_3 R_1, R_2, R_3 R_1, R_2, R_3

R R_1, R_2, R_3 R_1, R_2, R_3 R_1, R_2, R_3



R_1, R_2, R_3 R_1, R_2, R_3 R_1, R_2, R_3

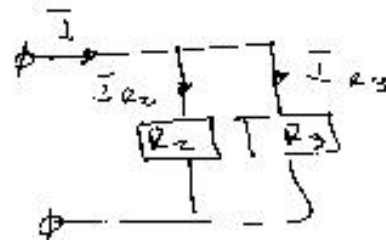
$$V_{R_1} = 10 e^{6 \bar{I}_{R_1}} \text{ [V]}$$

$$V_{R_2} = 5 e^{10 \bar{I}_{R_2}} \text{ [V]}$$

$$V_{R_3} = 20 e^{15 \bar{I}_{R_3}} \text{ [V]}$$

? R_1, R_2, R_3 R_1, R_2, R_3 R_1, R_2, R_3

R_1, R_2, R_3 R_1, R_2, R_3 R_1, R_2, R_3



$$V_{R_2} = V_{R_3} = V$$

$$\bar{I} = \bar{I}_{R_2} + \bar{I}_{R_3}$$

$$10 \bar{I}_{R_2} = \ln \frac{V}{5}$$

$$\bar{I}_{R_2} = \frac{1}{10} \ln \frac{V}{5}$$

$$\bar{I}_{R_3} = \frac{1}{15} \ln \frac{V}{20}$$

$$\begin{aligned}
 \bar{I} &= \bar{I}_{R_2} + \bar{I}_{R_3} = \frac{1}{10} \ln \frac{V}{5} + \frac{1}{15} \ln \frac{V}{20} = \\
 &= \frac{1}{10} \ln V - \frac{1}{10} \ln 5 + \frac{1}{15} \ln V - \frac{1}{15} \ln 20 = \\
 &= \frac{1}{6} \ln V - 0.36 \approx \\
 &\approx \frac{1}{6} \ln V - \frac{1}{6} \ln 8.6 = \\
 &= \frac{1}{6} \ln \frac{V}{8.6}
 \end{aligned}$$

$$\bar{I} = \frac{1}{6} \ln \frac{V}{8.6}$$

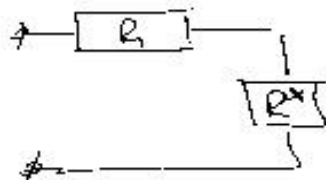
current source

$$6\bar{I} = \ln \frac{V}{8.6}$$

$$\frac{V}{8.6} = e^{6\bar{I}}$$

$$V_{R_2} = 8.6 e^{6\bar{I}}$$

10V source



$$V_s = V_{R_1} + V_{R_2}$$

10V = 10V

$$\bar{I}_{R_1} = \bar{I}_{R_2} = \bar{I}$$

$$V = 8.6 e^{6\bar{I}} + 10 e^{6\bar{I}} = 18.6 e^{6\bar{I}}$$

Gegeben: $V_S = 100V$
 ?

$$\bar{I}_{R_1} = 5^{10} \quad 1.3 \mu S = 0.0000013$$

$$100 = 18.6 e^{6\bar{I}}$$

$$6\bar{I}_{R_1} = \ln \frac{100}{18.6}$$

$$\bar{I}_{R_1} = \frac{1}{6} \ln \frac{100}{18.6} \approx 0.28 [A]$$

$$V_{R_1} = 10 e^{6\bar{I}_{R_1}} = 10 e^{6 \cdot 0.28} = 53.65 [V]$$

$$V_{R_2} = V_{R_3} = V_S - V_{R_1} = 100 - 53.65 = 46.34 [V]$$

$$\bar{I}_{R_2} = \frac{1}{10} \ln \frac{V_{R_2}}{5} = 0.222 [A]$$

$$\bar{I}_{R_3} = \frac{1}{13} \ln \frac{V_{R_3}}{20} = 0.056 [A]$$

; k_1, k_2

$$\bar{I}_{R_1} = \bar{I}_{R_2} + \bar{I}_{R_3}$$

R_1, R_2, R_3 are given in Ω to find

$t > 0$ $V_1(t) = I_1(t) \cdot \sin(t)$ or

$$V_2(t) = I_2(t) \cdot 2 \cos(t)$$

$$V_3(t) = I_3(t) \cdot e^{-t}$$

? System from the given poles in

for given initial condition to find or to find $t=0$ $ES \leq$

$$R_i = \frac{V_i(t)}{I_i(t)} = \sin(t_0)$$

(initial condition for R_i)

given from the system R_{eq}



$$R_{eq} = R_1 + R_2 \parallel R_3 = R_1 + \frac{R_2 R_3}{R_2 + R_3} =$$

$$= \sin(t) + \frac{2 \cos(t) e^{-t}}{2 \cos t + e^{-t}}$$