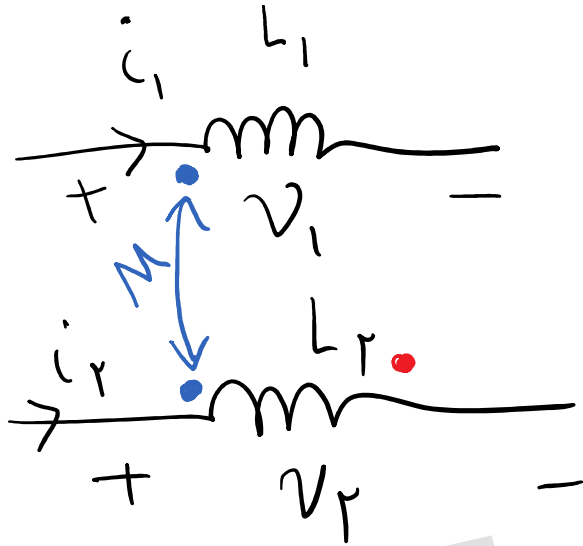




سکم ...

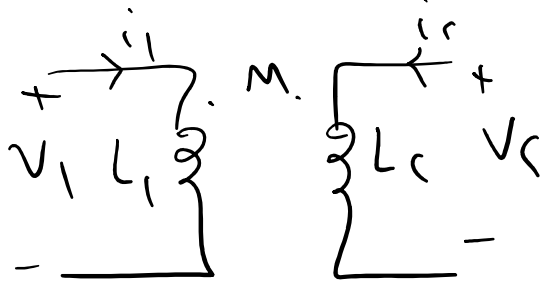
$$v_1 = L_1 i_1' + M i_2'$$

$$v_1 = jL_1 \omega i_1 \pm M j \omega i_2$$

$$v_1 = L_1 s i_1 + M s i_2$$

$$v_2 = M s i_1 + L_2 s i_2$$

تسویج



$$v_1 = L_1 s i_1 + M s i_2$$

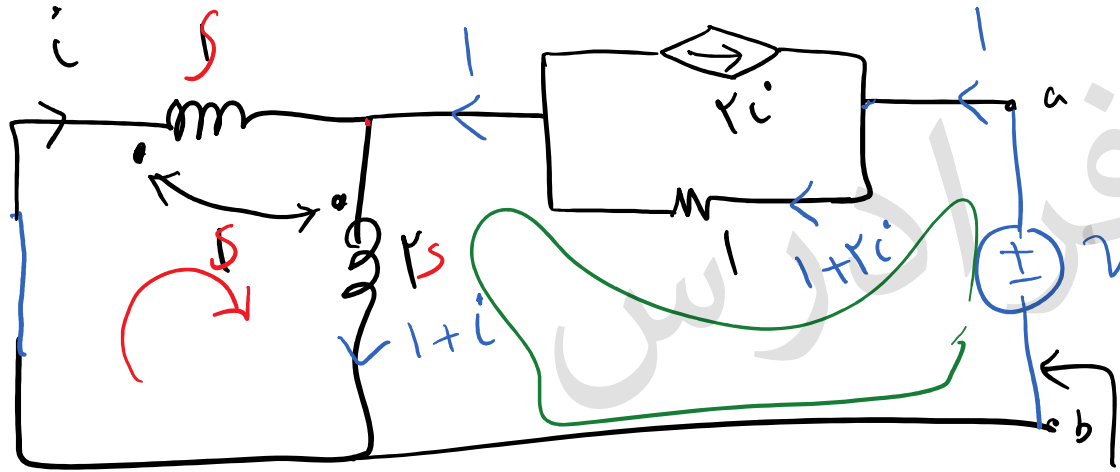
$$v_2 = M s i_1 + L_2 s i_2$$

$$\Rightarrow \begin{bmatrix} v_1 \\ v_2 \end{bmatrix} = s \underbrace{\begin{bmatrix} L_1 & M \\ M & L_2 \end{bmatrix}}_{\text{اندر دس}}$$

همزیب سربوع

$$K = \frac{|M|}{\sqrt{L_1 L_2}}$$

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$$\cancel{S} \cancel{i} + \cancel{S} + \cancel{S} \cancel{i} + \cancel{r} S + \cancel{r} S \cancel{i} + \cancel{S} \cancel{i} = 0$$

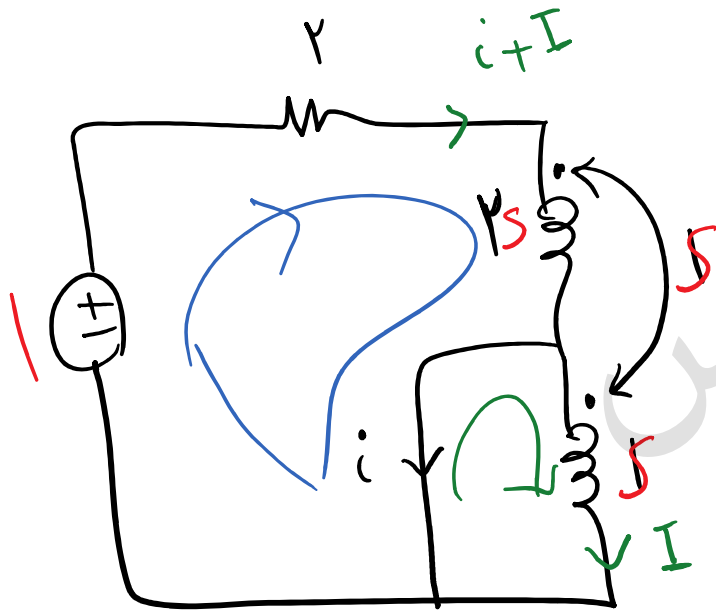
$$\partial i = -r$$

$$V = 1 + r i + r S (1 + i) + S i$$

$$= 1 + r i + r S i + r S$$

$$= \frac{S - 1}{r}$$

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$$sI + s(i+I) = 0 \Rightarrow \underline{I} = \frac{-i}{2}$$

$$1 = r\dot{i} + rI + rs(i+I) + sI$$

$$1 = \dot{i} + rs\left(\frac{\dot{i}}{2}\right) - \frac{s\dot{i}}{2}$$

$$\dot{i} = \frac{1}{\frac{s}{r} + 1} = \frac{r}{s+2}$$

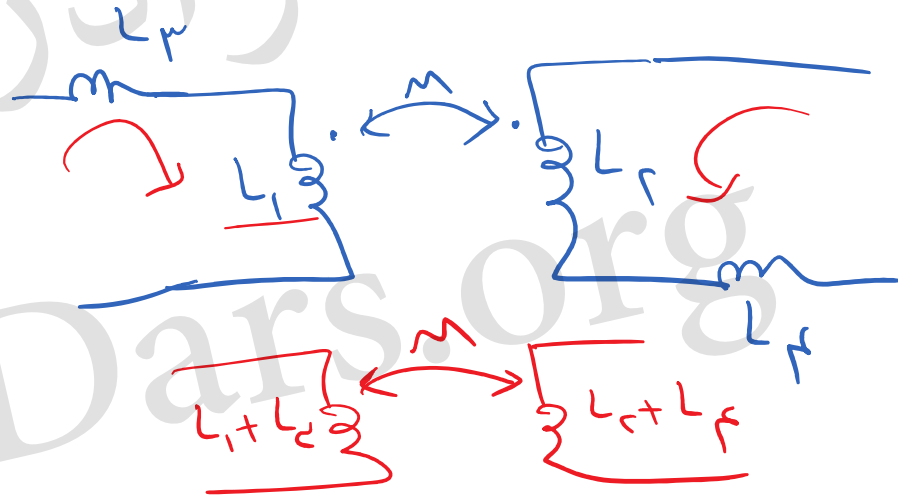
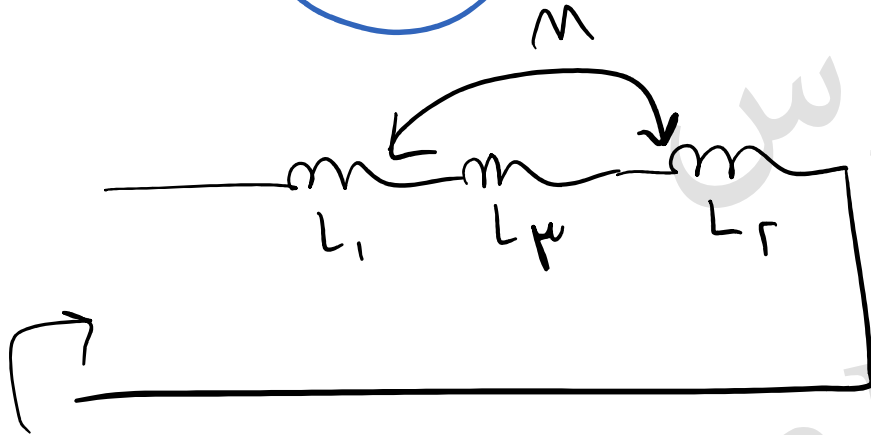
$$i(t) = re^{-2t}u(t)$$

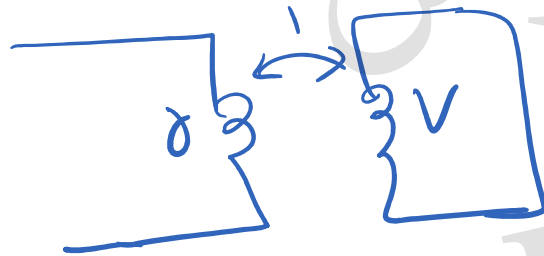
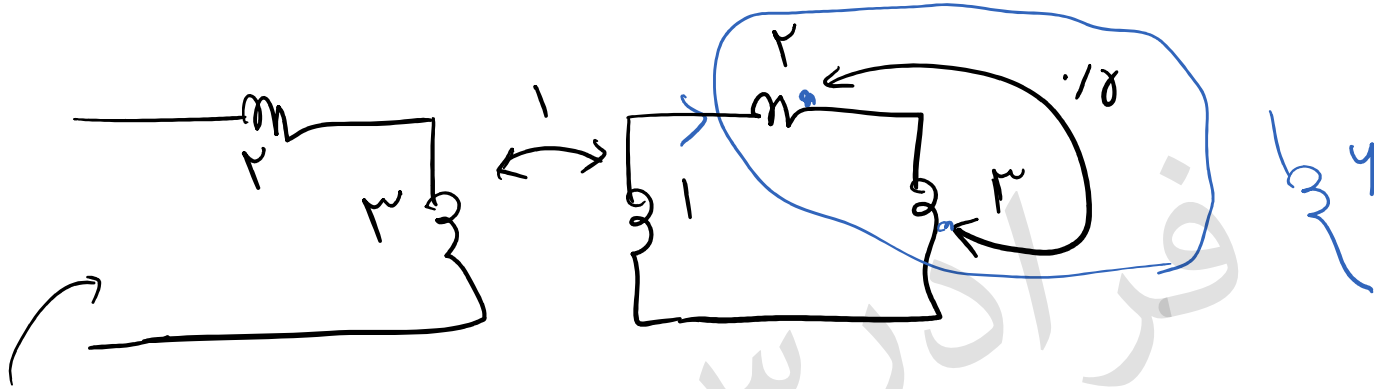
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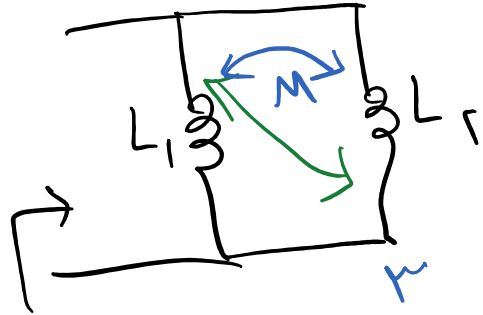
$$v = L_1 \frac{di}{dt} + M \frac{di}{dt} + L_2 \frac{di}{dt} + M \frac{di}{dt}$$

$$= s(L_1 + L_2 + 2M) i$$

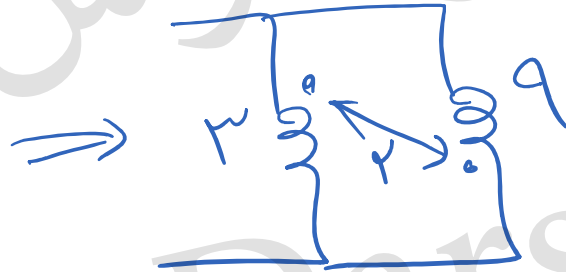




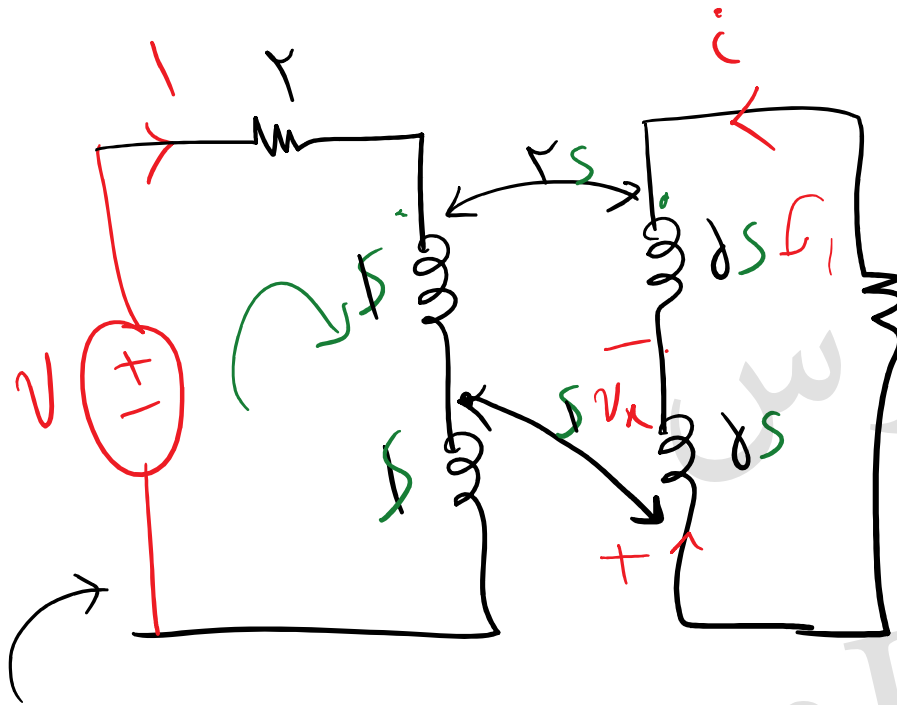
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$$L_{eq} = \frac{L_1 L_2 - M^2}{L_1 + L_2 - 2M}$$



$$L_{eq} = \frac{17 - 4}{12 + 4} = \frac{13}{16}$$



$$v = R + S + M \frac{di}{dt} + S - S \frac{di_s}{dt}$$

$$= R + S + M \frac{di}{dt}$$

$$v_n = -M \frac{di}{dt} - S$$

$$i \frac{di}{dt} + M \frac{di}{dt} + R i - v_n = 0$$

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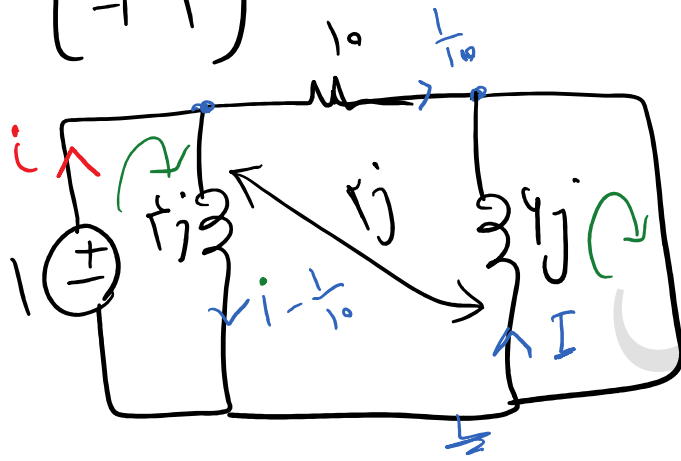
$$L = \begin{bmatrix} 2 & -1 \\ -1 & 3 \end{bmatrix}$$

$$P = V_{\alpha} i$$



$$1jI + 2j(i - \frac{1}{10}) = 0$$

گولبر



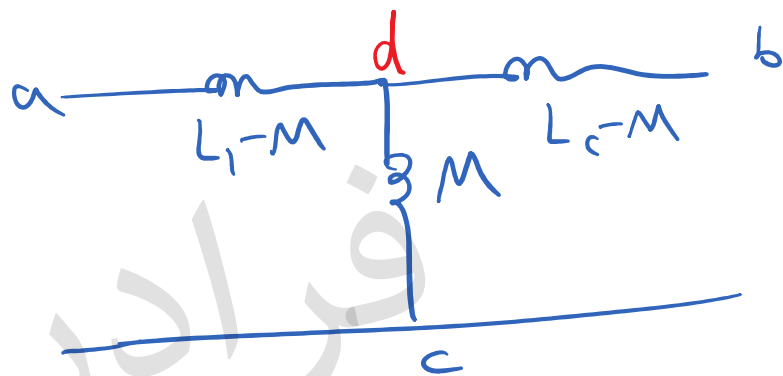
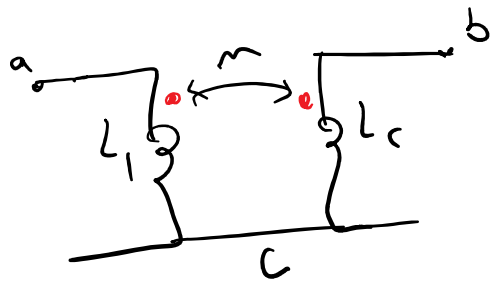
$$I = \frac{1}{10} - \frac{i}{3}$$

$$1 = 1j(i - \frac{1}{10}) + 2jI = 1j(i - \frac{1}{10}) + 2j(\frac{1}{10} - \frac{i}{3})$$

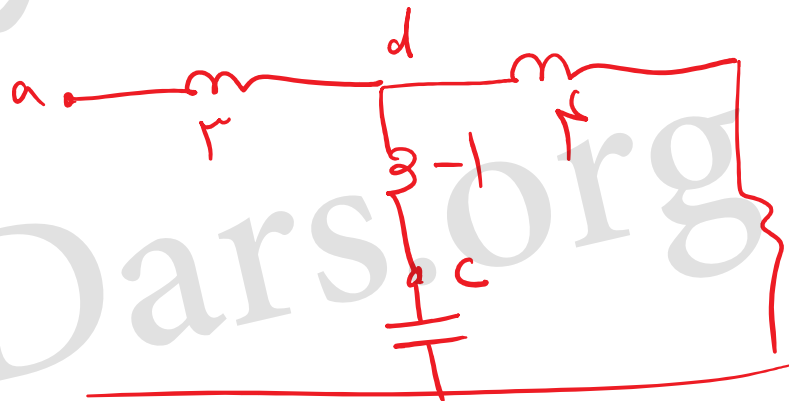
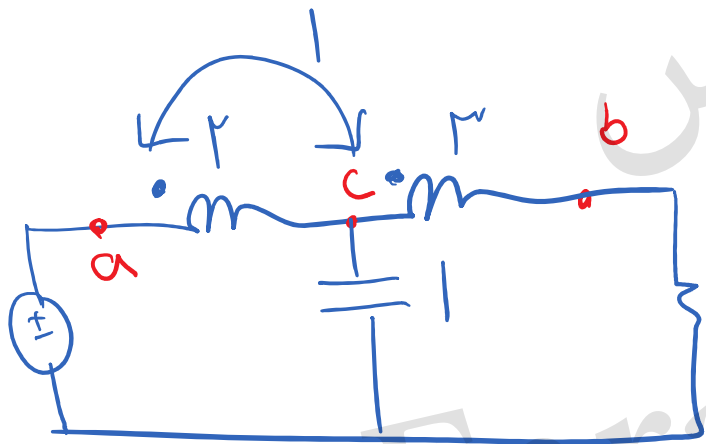
$$-j = i(1 - \frac{2}{3}) - \frac{1}{10} + \frac{2}{10}$$

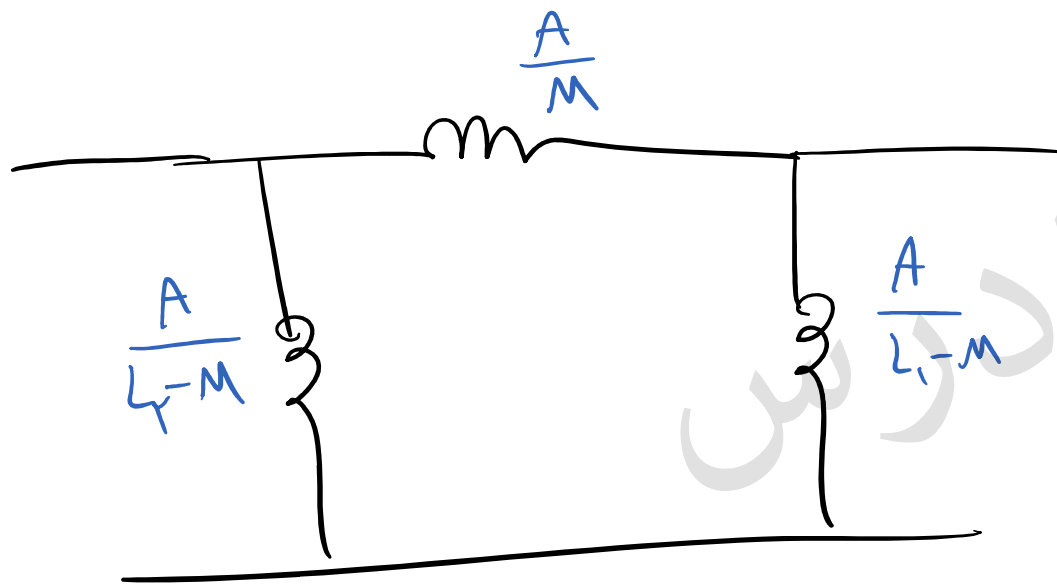
$$= i(\frac{1}{3}) - \frac{1}{10}$$

$$10i - 1 = -2j \Rightarrow \boxed{i = \frac{1 - 2j}{10}}$$



: T J u

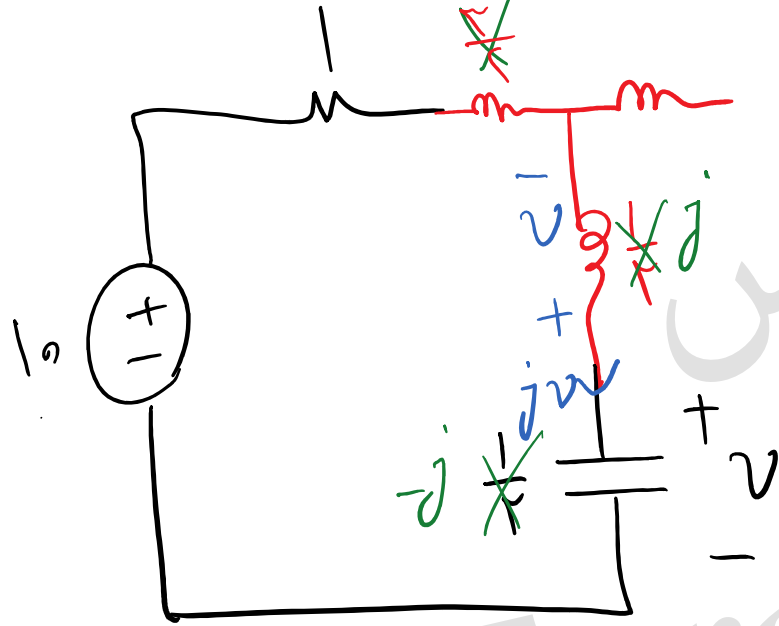




$$L_1 L_C - M^2 = A$$

π

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$$I_o = (1 + 1j)jV$$

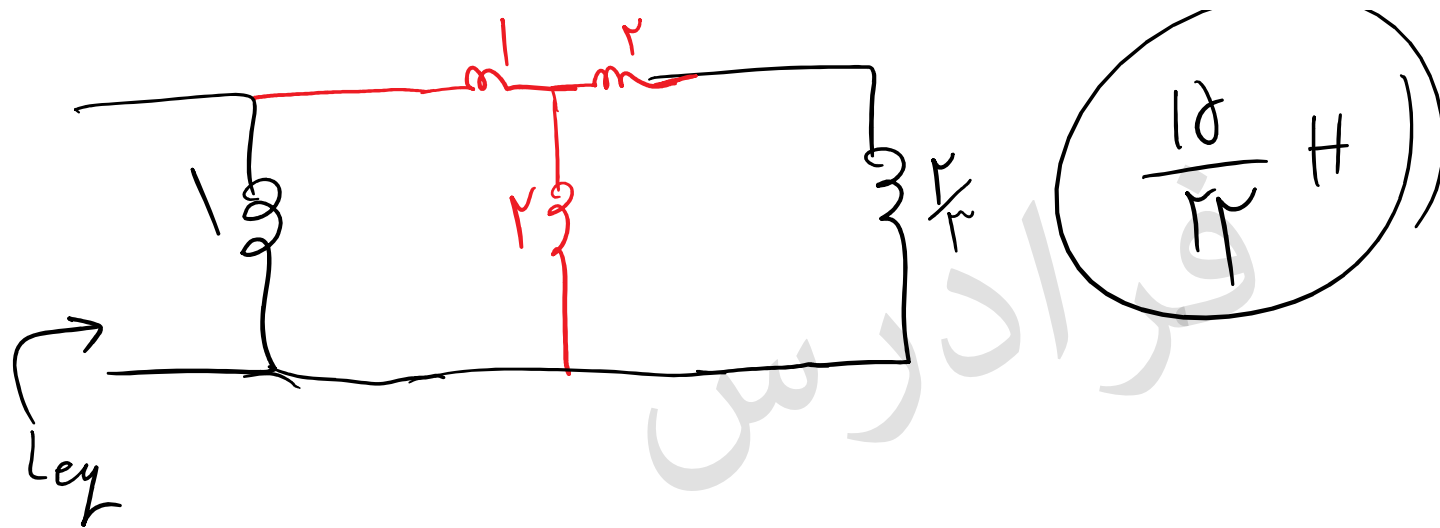
$$= (j - 1)V$$

$$V = \frac{I_o}{j - 1} \times \frac{j + 1}{j + 1} =$$

$$\boxed{-1 - j}$$

$$\begin{aligned} & -\cos 2t - 1\sin 2t \\ & \cos 2t + 1\sin 2t \\ & 1\cos 2t - \sin 2t \\ & 1\cos 2t + \sin 2t \end{aligned}$$

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$$W = \frac{1}{\gamma} \mathbf{I}^T \mathbf{L} \mathbf{I}$$

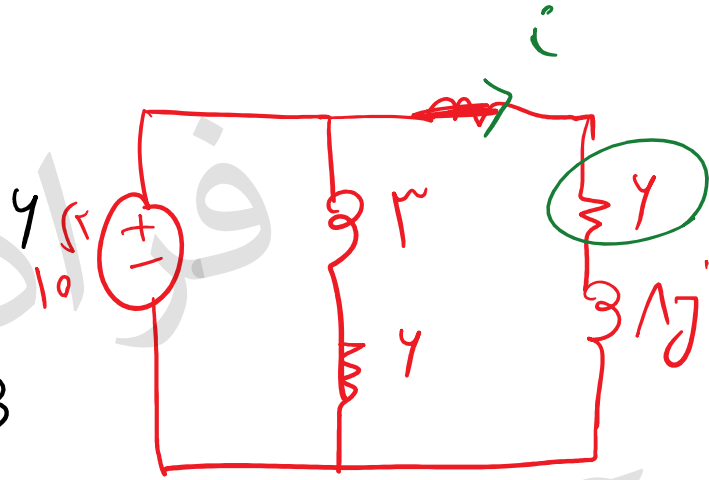
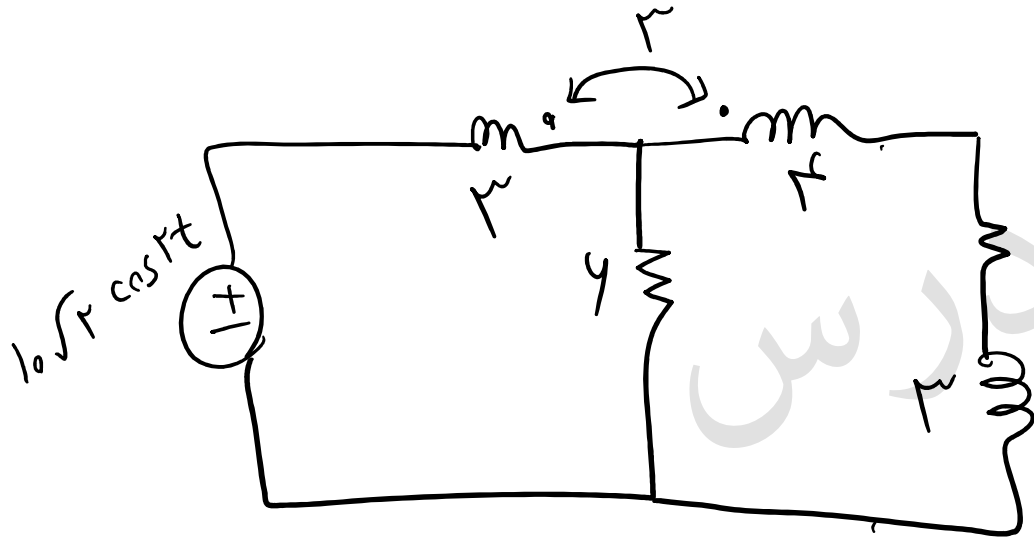
$$W = \frac{1}{\gamma} L_1 i_1^2 + \frac{1}{\gamma} L_2 i_2^2 \pm M i_1 i_2$$

انرژی:

$$\mathbf{L} = \begin{bmatrix} 2 & 1 & -1 \\ 1 & 2 & -1 \\ -1 & -1 & 2 \end{bmatrix}$$

$$\mathbf{I} = \begin{bmatrix} 2 \\ 1 \\ 2 \end{bmatrix}$$

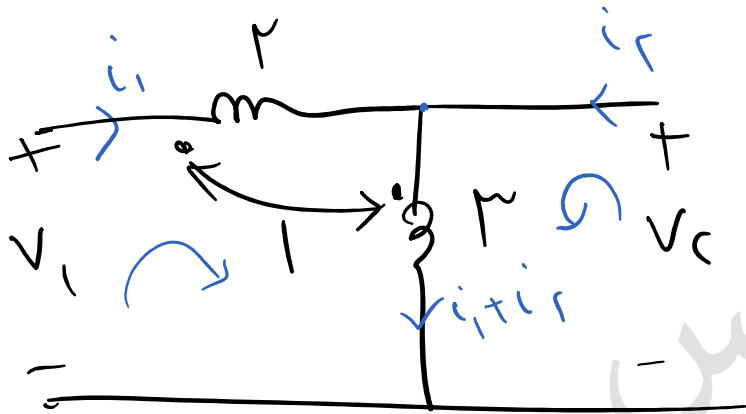
$$W = \frac{1}{\gamma} \begin{bmatrix} 2 & 1 & 2 \end{bmatrix} \begin{bmatrix} 2 & 1 & -1 \\ 1 & 2 & -1 \\ -1 & -1 & 2 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 2 \end{bmatrix} = \frac{1}{\gamma} \begin{bmatrix} 2 & 1 & 2 \end{bmatrix} \begin{bmatrix} 8 \\ 0 \\ 1 \end{bmatrix} = 15$$



$$|i| = \frac{10\sqrt{2}}{|4 + j1|} = \sqrt{2} \rightarrow i_{rms} = 1 \rightarrow P = 4 \text{ W}$$



$$\begin{aligned} v_1 &= L_a \dot{c}_1 - M \dot{c}_2 \\ v_2 &= L_b \dot{c}_2 - M \dot{c}_1 - L_c \dot{c}_1 \end{aligned} \Rightarrow \begin{bmatrix} L_a & -M \\ -L_c - M & L_b \end{bmatrix}$$



$$v_1 = r_1 i_1 + i_1 + i_2 + r_2 i_1 + r_2 i_2 + i_1$$

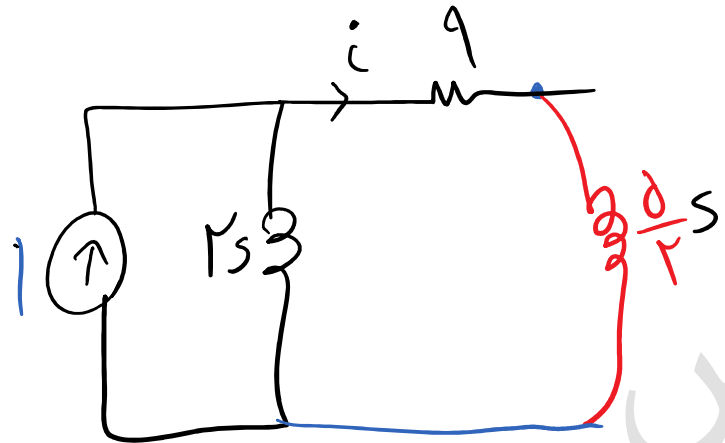
$$v_2 = r_2 i_1 + r_2 i_2 + i_2$$

$$L = \begin{bmatrix} L_1 & M \\ M & L_2 \end{bmatrix}$$



$$0 < k < 1$$

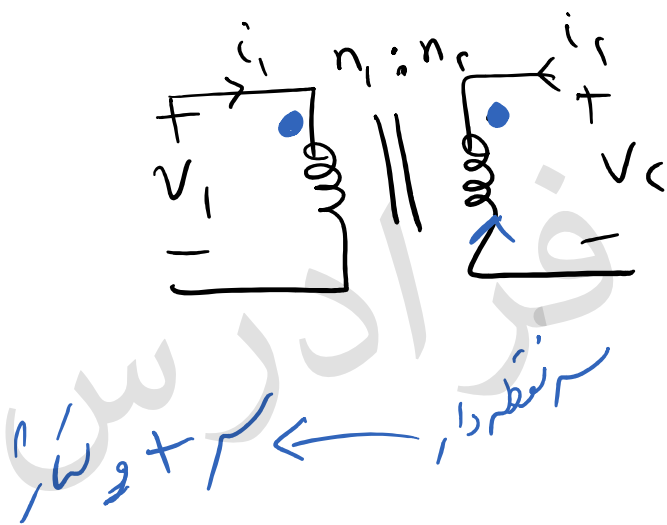
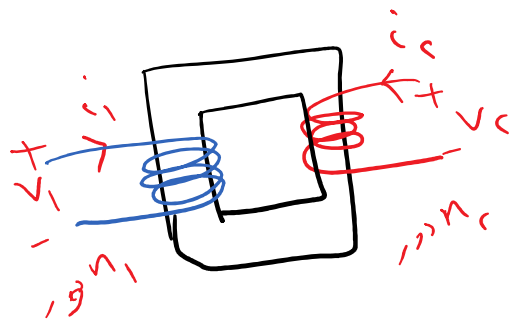
$$k = \frac{|M|}{\sqrt{L_1 L_2}} = \frac{r}{\sqrt{c_1}} = \dots$$



$$i = \frac{rs}{q + r_1 s + rs} = \frac{r}{q} - \frac{\Lambda}{q} \frac{1}{s+r}$$

$$\left(\frac{r}{q} - \frac{\Lambda}{q} e^{-rt} \right) u(t)$$

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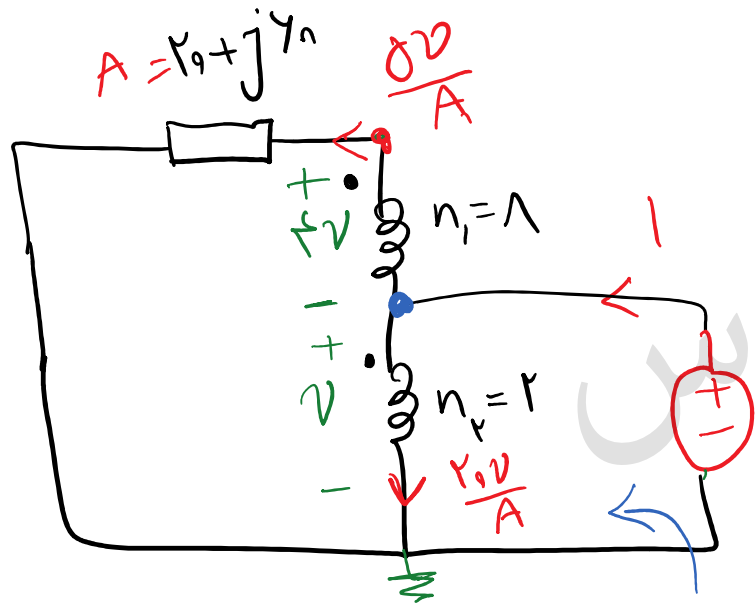
نقطه دا ← i_1 و v_1

ترازش:

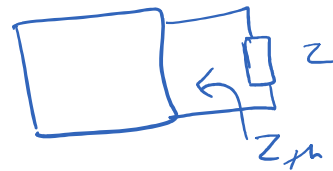
$$\frac{v_1}{v_2} = \frac{n_1}{n_2}$$

$$\frac{i_1}{i_2} = -\frac{n_2}{n_1}$$

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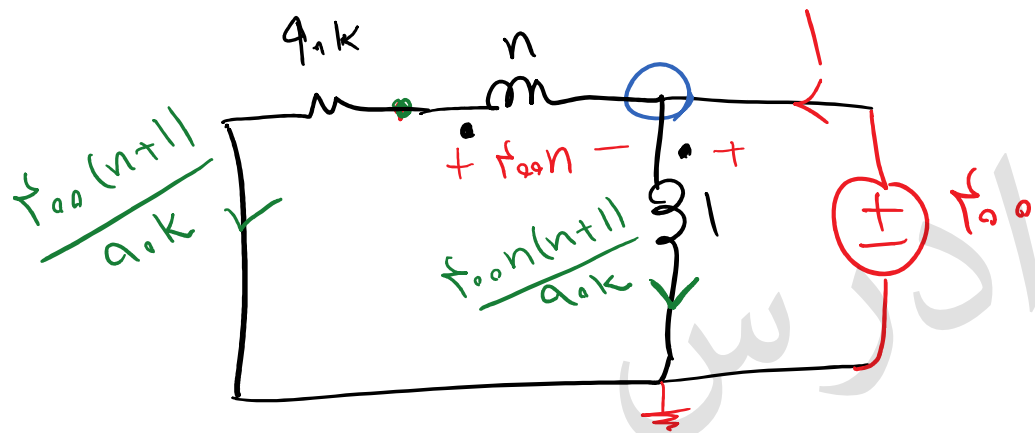
$$R = R_m$$



$$Z = Z_m$$

$$I = \frac{V}{Z_1 + Z_2} \Rightarrow Z_m = \frac{1}{\frac{1}{Z_1} + \frac{1}{Z_2}}$$

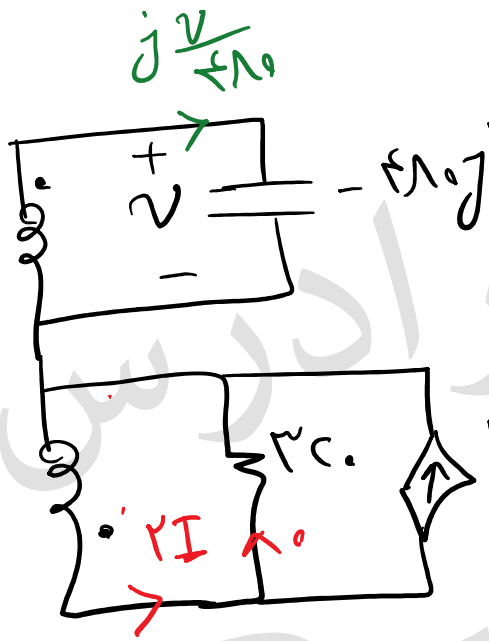
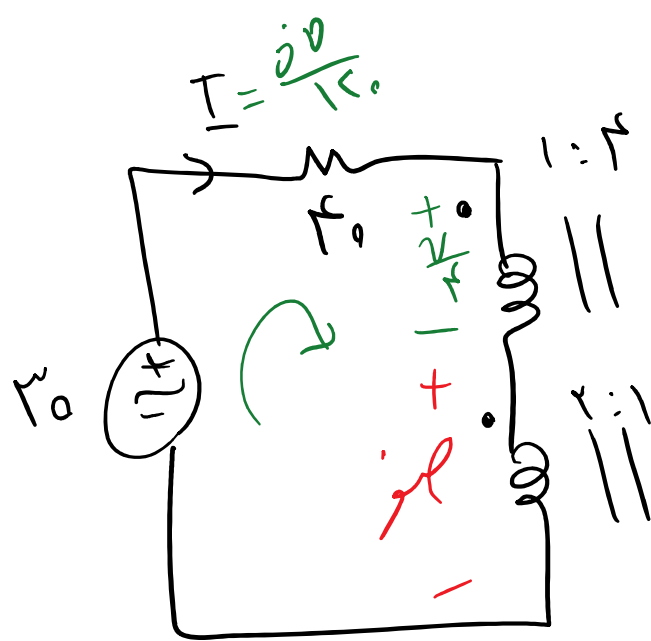
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$$\frac{N_1}{N_c} = n$$

$$I = \frac{r_{00}(n+1)}{90k} (1+n) \Rightarrow (n+1)^2 = \frac{90000}{r_{00}}$$

$$n+1 = \frac{r_{00}}{r_e} = 18 \Rightarrow n = 17$$



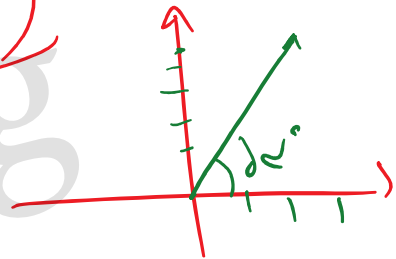
$$r_0 = j \frac{v}{r} + \frac{v}{r}$$

$$r y_0 = v (r + j r)$$

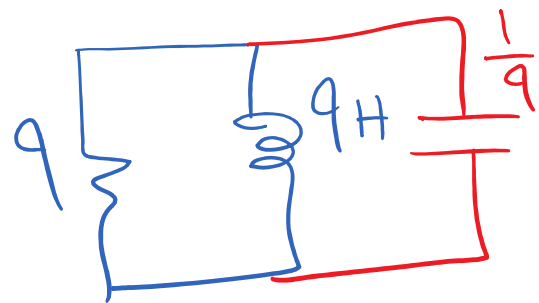
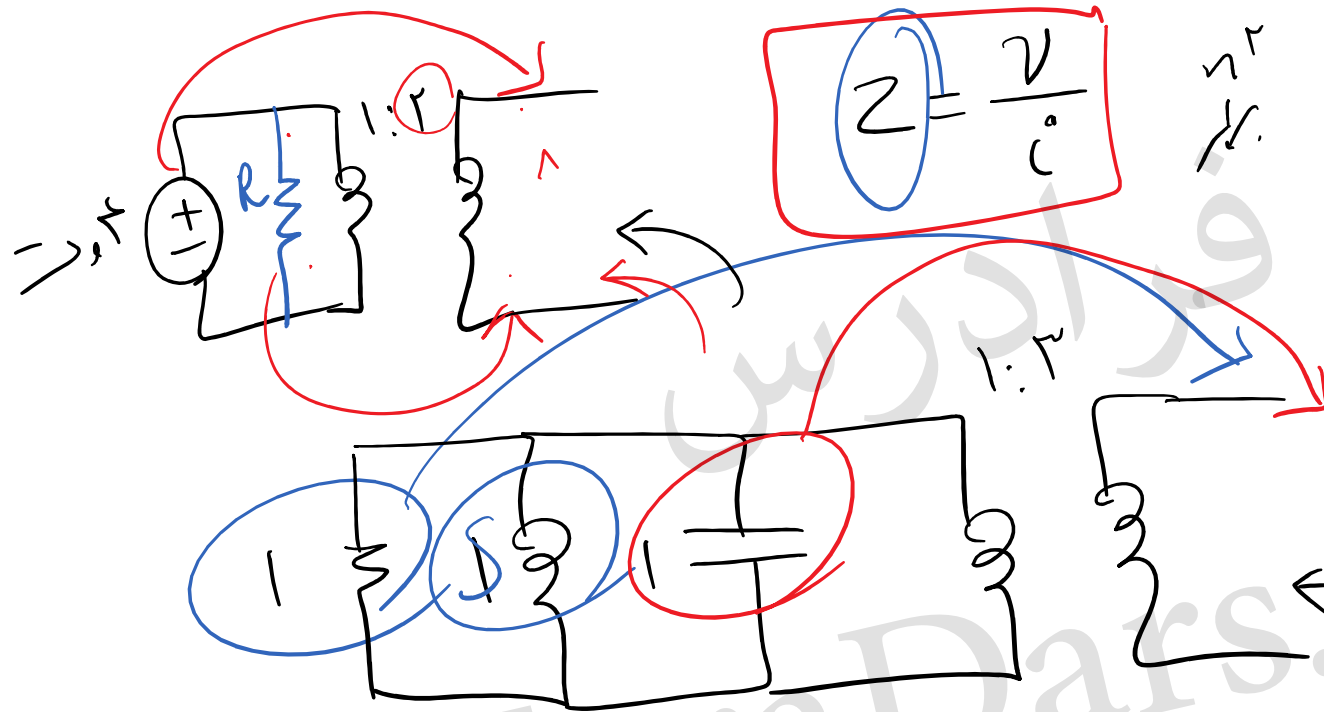
$$v = \frac{r y_0}{r + j r} =$$

$$\frac{r y_0}{r + j r}$$

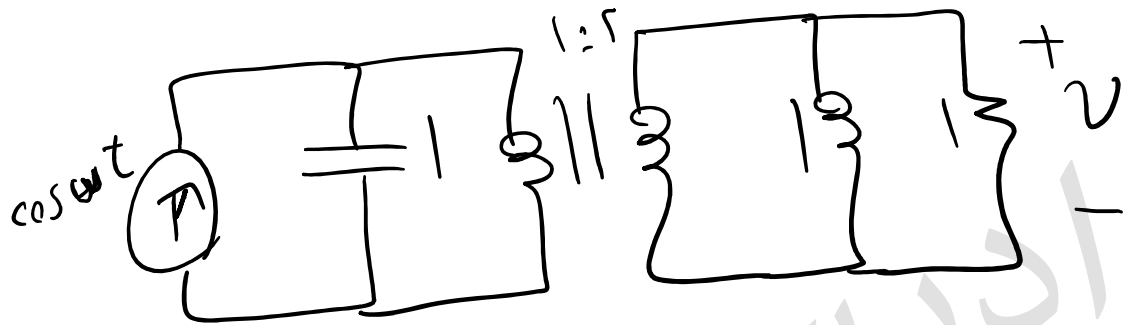
$$\delta \times \delta c$$



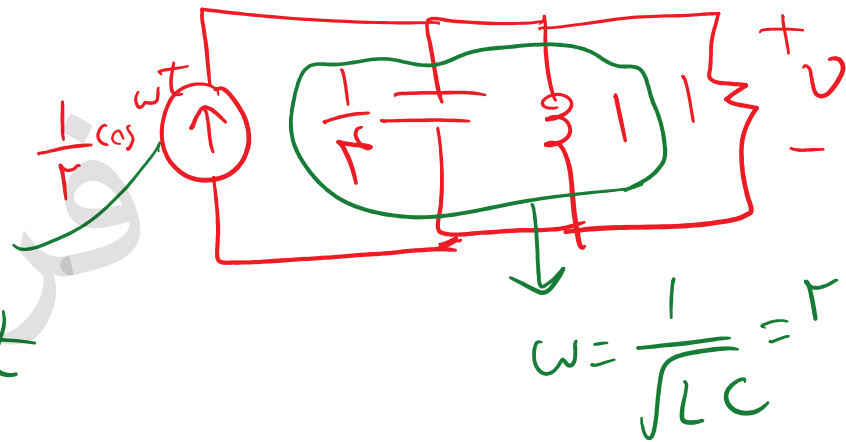
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$$\frac{1}{Cs}$$

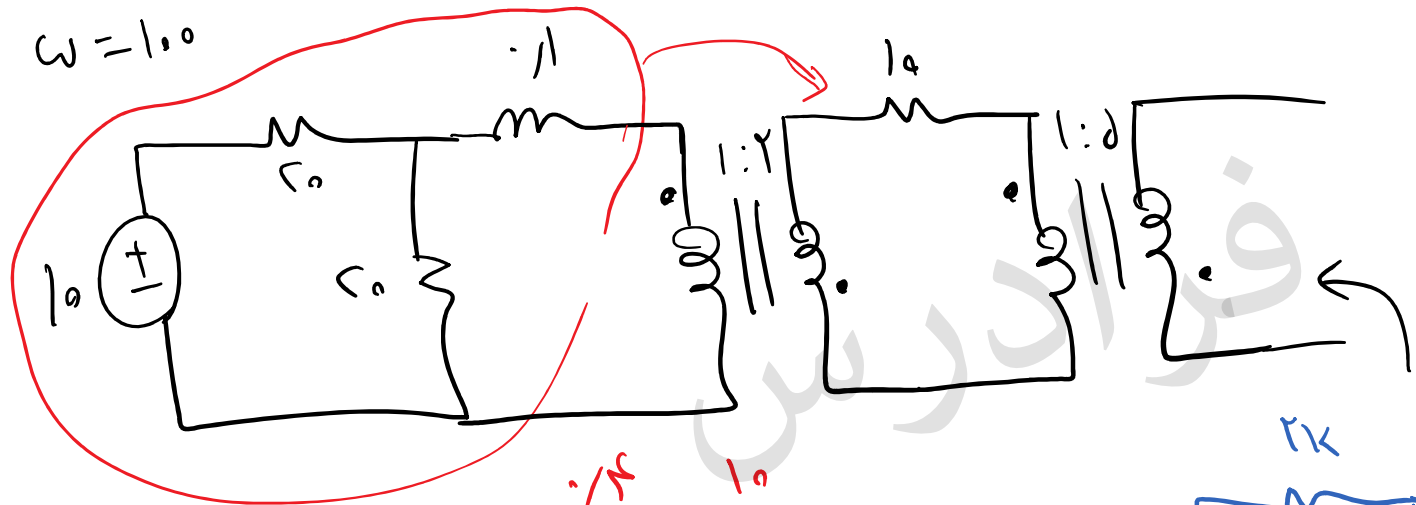


$$v = \frac{1}{r} \cos r t$$



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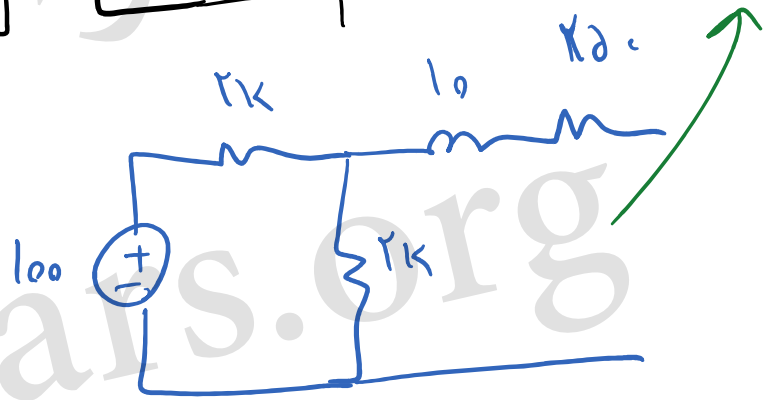
$$\omega = 100$$

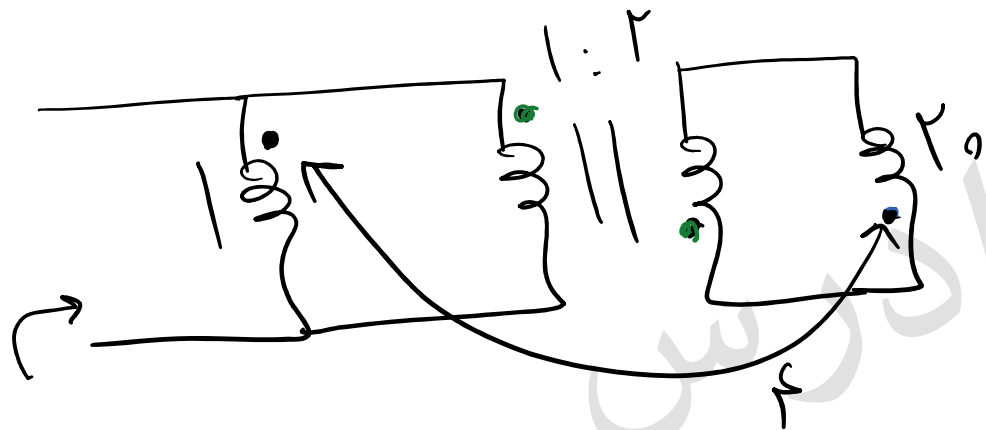


$$10 \times 20$$

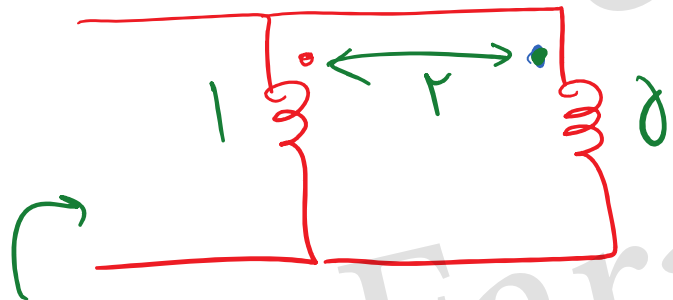
$$V_{th} = 0$$

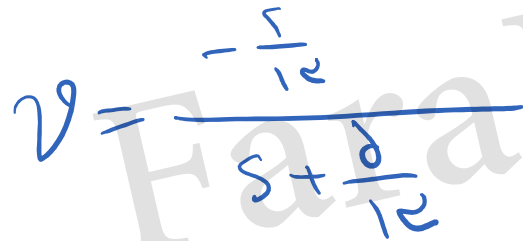
$$Z_{th} = 1\angle 0^\circ + j1000$$





$$L_{eq} = \frac{\delta - \kappa}{\gamma - \kappa} = \frac{1}{\kappa}$$





$$1 + 2 \left(\frac{\sigma}{r} + \frac{1}{r} \right) = 9$$

$$v(t) = -\frac{r}{ia} e^{-\frac{\gamma}{ia} u(t)}$$

این اسلاید ها بر مبنای نکات مطرح شده در فرادرس

«آموزش مدارهای الکتریکی ۲»

تهیه شده است.

برای کسب اطلاعات بیشتر در مورد این آموزش به لینک زیر مراجعه نمایید

faradars.org/fvee102