

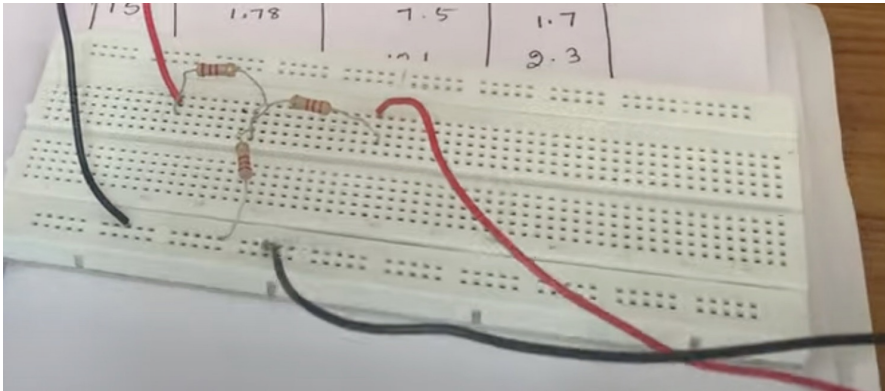
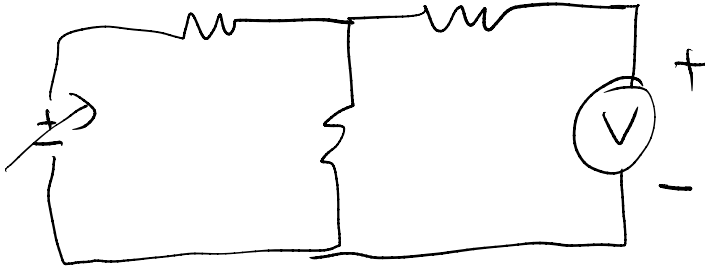
$$\frac{V_{ab} - 15}{1500} + \frac{V_{ab}}{1800} = 0$$

$$\rightarrow V_{ab} = 8.18 \text{ V}$$

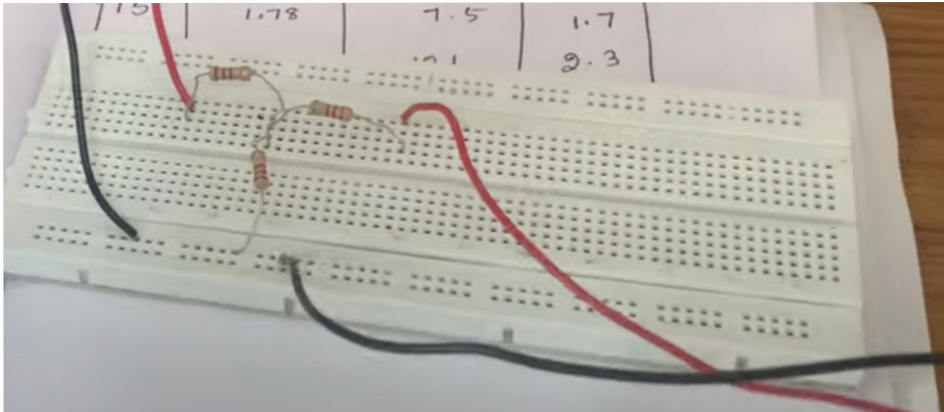
Source - deactivating :

$$R = 1500 // 1800 = 2018.18$$

to find " $V_{th}$ "



to find " $R_{th}$ "



To find " $I_L$ "

$v_L$

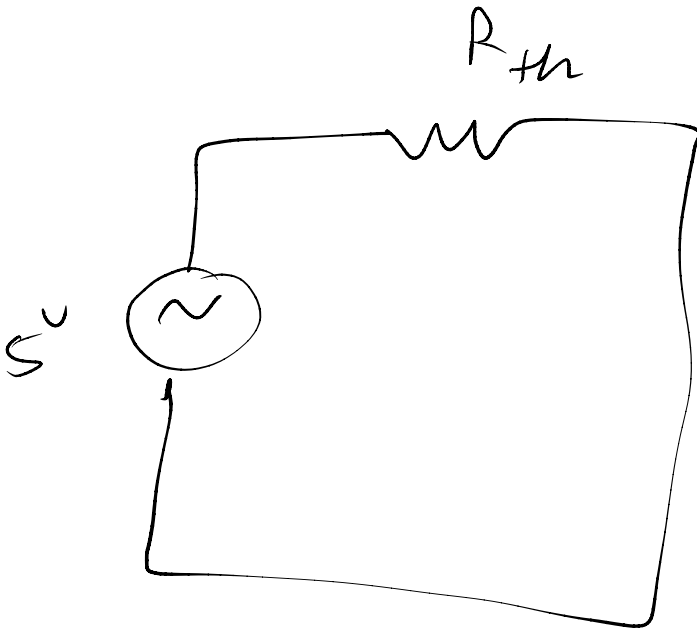
$$1 \quad 0.3 + 8 = 2.4$$

$$2 \quad = 3.2$$

$$3 \quad = 4$$

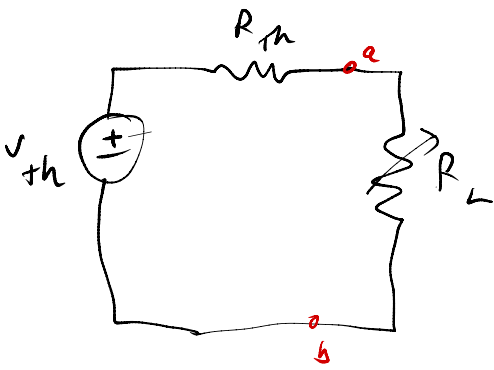
$$4 \quad = 4.8$$

$$5 \quad = 5.6$$



$$V_L = 2.4 \text{ V}$$

$$0.49 \times 10^5 \\ = 49 \Omega$$



$$V_{ab} = V_{th} + \frac{R_L}{R_{th} + R_L} V_{th}$$

when  $V_{ab} = \frac{1}{2} V_{th}$

$$3.96 = \frac{V}{R}$$

$$P_L = \frac{V_L^2}{R}$$

$$I_{sc} = 4 \text{ mA}$$

$$\frac{V_{12}}{R} = i$$

$$V_L = 4.14 \text{ V}$$

$$\frac{V_{AB}}{6 - j2} + \frac{V_{AB}}{j18 + 6} + \frac{V_{AB}}{17} + \frac{V_{AB}}{j17} = 0$$

$$\Rightarrow V_{AB} (j18 + 6)(17)(j17) + V_{AB} (6 - j2)(17)(j17)$$

$$+ V_{AB} (j17 + 4 - 5202) + V_{AB} (578 + j1734)$$

$$+ V_{AB} (j1224 - 1632) + V_{AB} (1224 + 1632j)$$

$$= V_{AB} (-5032 + j6324) = 0$$

$$F = 500$$

$$V_{in} = 500 \mu S$$

$$V_{out} = 404 \mu S$$

$$t_1 = 2.505 \text{ ms} = 0.01077 \times 10^{-6}$$

$$t_2 = 2.387 \text{ ms}$$

$$\varphi_{in} = 1.78 \angle 0^\circ$$

$$\varphi_{out} = 1.66 \angle -19.4^\circ$$

$$\frac{1}{1000\pi \cdot C} = 1.07 \angle 19.4$$

$$\Rightarrow$$

$$\text{ms}$$

$$V_{out} = 2.37 \text{ A} = 1.82 \text{ V}$$

$$\varphi_{in} = 2.49 \text{ ms} \quad A = 1.99 \text{ V}$$

$$\Delta t = -1.2 \times 10^{-4} =$$

$$\frac{\varphi_{in}}{\varphi_R}$$

$$404 \mu S \quad 1.45$$

$$492 \mu S \quad 1.99$$



$$f = 750$$

$$v_{in} = \frac{330 \mu s}{1.99} ms$$

$$\Delta t = 37 \mu s$$

$$v_{out} = \frac{293 ms}{1.59V}$$

$$F = 1000$$

$$v_{in} = 1.99, 250 \mu s$$

$$v_{out} = 1.67, 227 \mu s$$

$$87.56 \text{ cm}$$

$$16.95 \text{ cm}$$