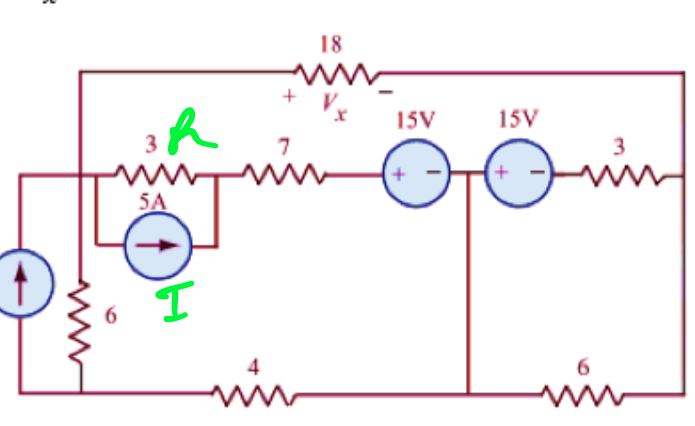


Assignment 2

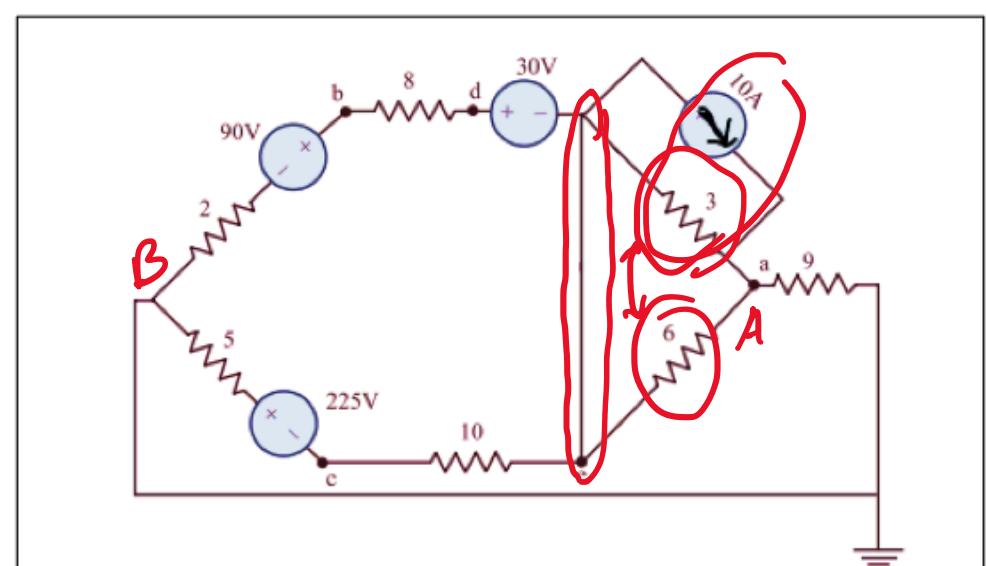
Summer'2023

CSE-250 (Section-13, 14 and 17)

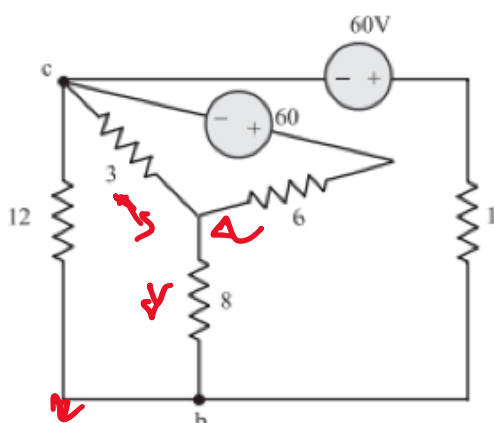
1. Using Source Transformation, reduce the following circuit a single loop circuit and find  $V_x$



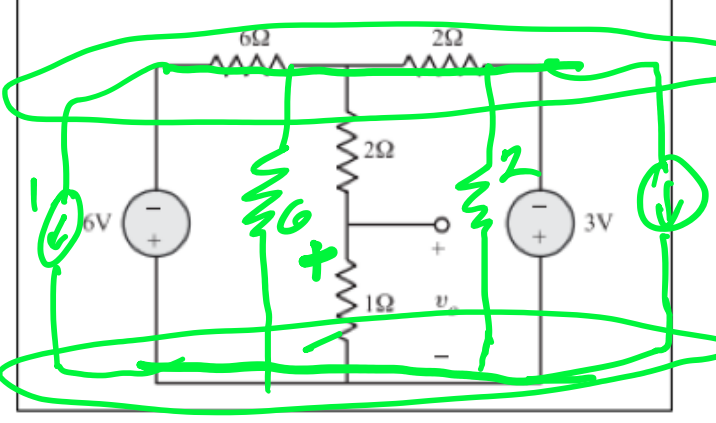
2. Using Source Transformation, find the voltage across 9 ohm resistor



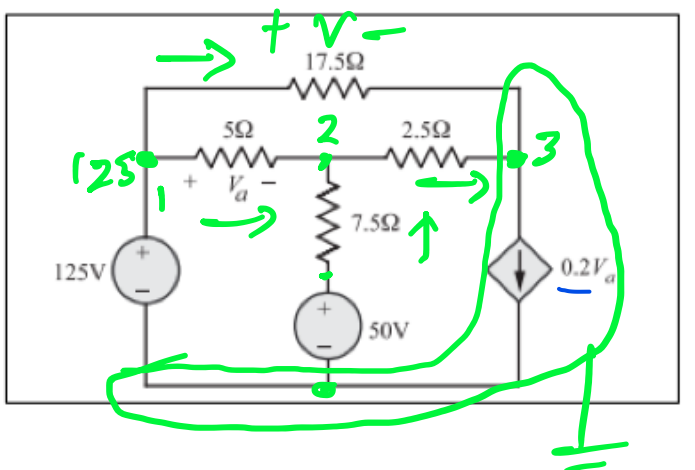
3. Using Source Transformation, find  $V_{bc}$



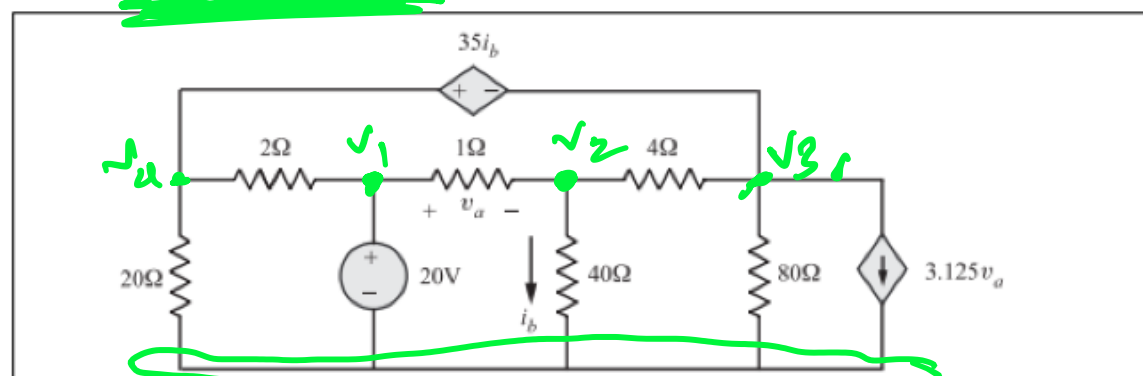
4. Using Source Transformation, find  $v_o$



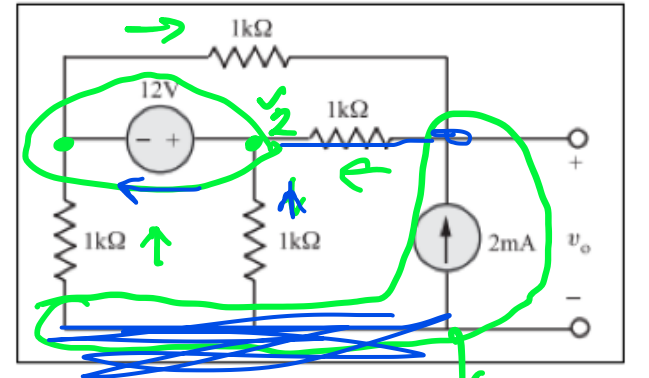
5. Using Nodal analysis, determine the power of different sources.



6. Using Nodal analysis, find the power developed by 20V source



7. Using Nodal analysis, find the power developed by 12V and 2mA sources.



Power =  $I^2 R$

$= \frac{V^2}{R} = IV$

$\therefore$  at  $V_1$  &  $V_2$  superimpose,

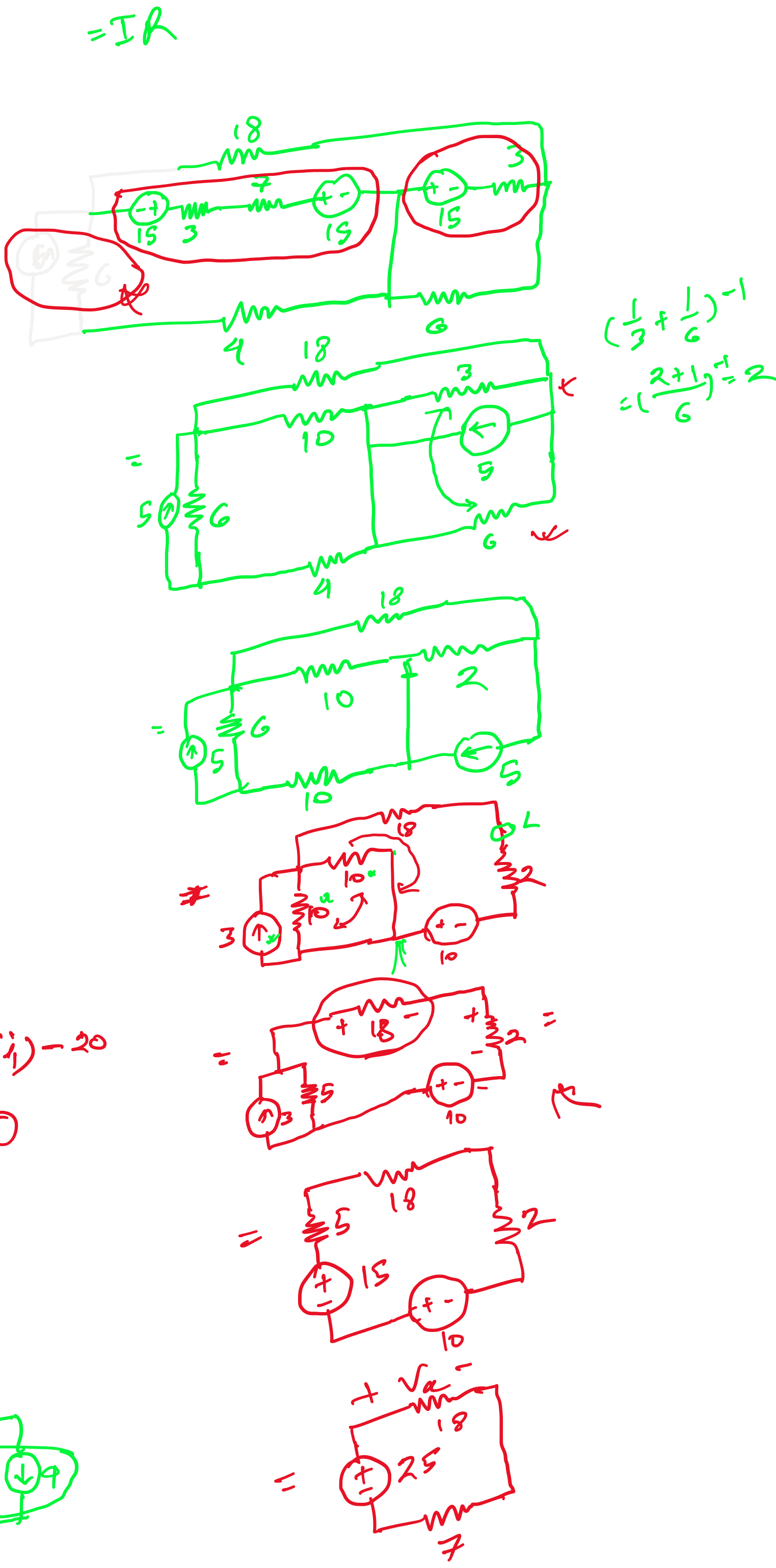
$\frac{0 - V_1}{1k} + \frac{0 - V_2}{1k} = \frac{V_2}{1k}$

$\Rightarrow \frac{12 - V_2}{1k} + \frac{-V_2}{1k} = \frac{V_2}{1k}$

$\Rightarrow 12 - 2V_2 = V_2 \Rightarrow V_2 = 4V$

$P = IV, I^2 R, \frac{V^2}{R}$

$= IR$



$(\frac{1}{2} + \frac{1}{6})^{-1} = (\frac{2+1}{6})^{-1} = 2$

$\therefore 5(i_1 - i_2) + 225 + \frac{(i_1 - i_2) \cdot 10}{2} + 2(i_1) - 20 + 9i_1 = 0$

$V_{bc} = (i_1)(15 || 12) + (i_2) = 4mV$