EEE111 Spring 2022

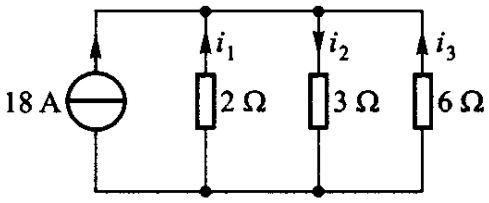
Homework 1

Due date: Feb. 28^{th}, 2022, Monday
Turn in your homework in class

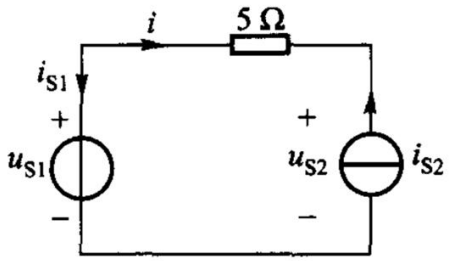
Rules:

- Work on your own. Discussion is permissible, but extremely similar submissions will be judged as plagiarism.
- Please show all intermediate steps: a correct solution without an explanation will get zero credit.
- Please submit on time. No late submission will be accepted.
- Please prepare your submission in English only. No Chinese submission will be accepted.

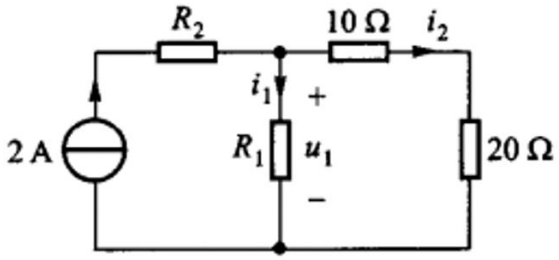
1. Find the value of $i_1,\ i_2,\ i_3$.



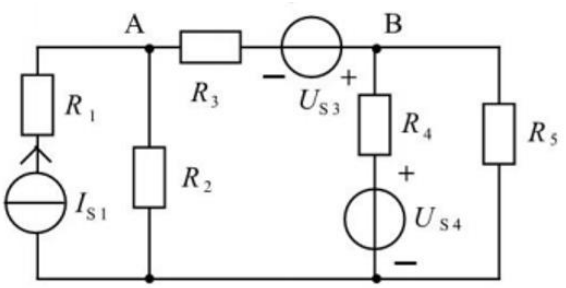
2. Known that the voltage source is $u_{S1} = 10V$, and the current source is $i_{S2} = 3A$, find the power extracted from the voltage source and the current source.



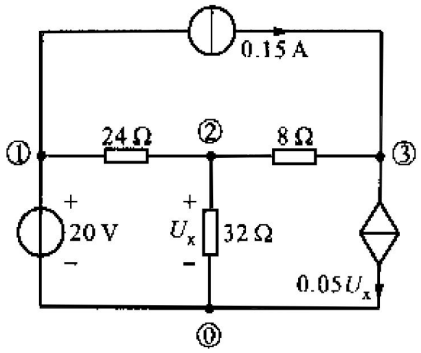
3. Known that $u_1 = 30V$, find the value of the resistor R_1.



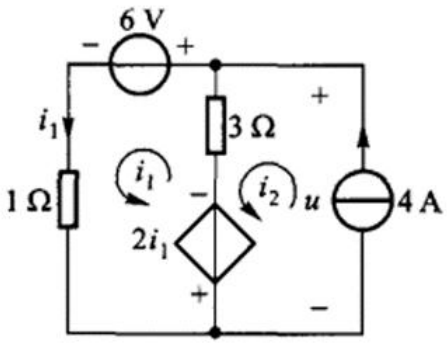
4. Known that $U_{S3} = U_{S4} = 10V$, $I_{S1} = 10A$, $R_1 = R_2 = 5\Omega$, $R_3 = 4\Omega$, $R_4 = R_5 = 2\Omega$. Using nodal analysis, find U_{AB}.



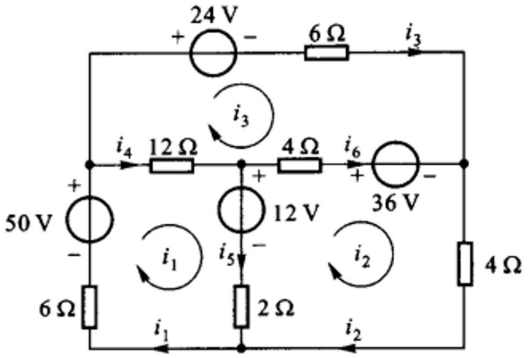
5. Using nodal analysis, find the value of U_X.



6. Using mesh analysis, find the voltage u and the current i_1.



7. Using mesh analysis, find $i_1,\ i_2,\ i_3,\ i_4,\ i_5,\ i_6$.



8. Using mesh analysis, find i_1, i_2.