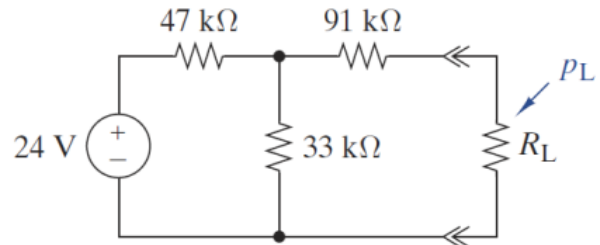


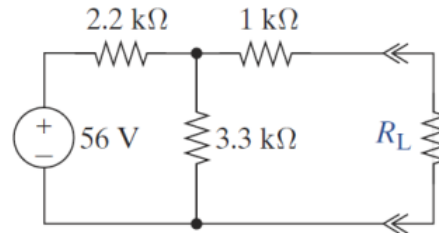
ENG EK 307: Electric Circuits, Fall 2025
Problem Set 4
Due Wednesday 10/01/2025 by 11:59pm

Reading: *Alexander and Sadiku (AS)*, Sections 4.1-4.6, 4.8, 4.10, 4.11

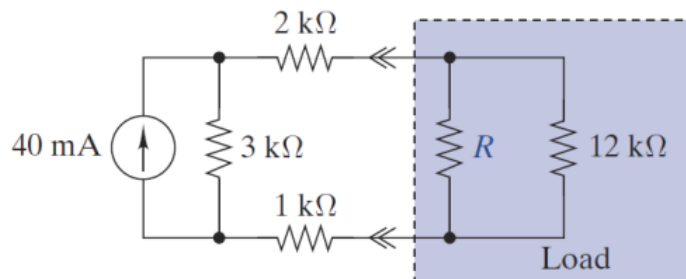
1. **[10 points]** Find the Thevenin equivalent circuit seen by R_L . Find the power p_L delivered to the load when $R_L = 50 \text{ k}\Omega$ and $200 \text{ k}\Omega$.



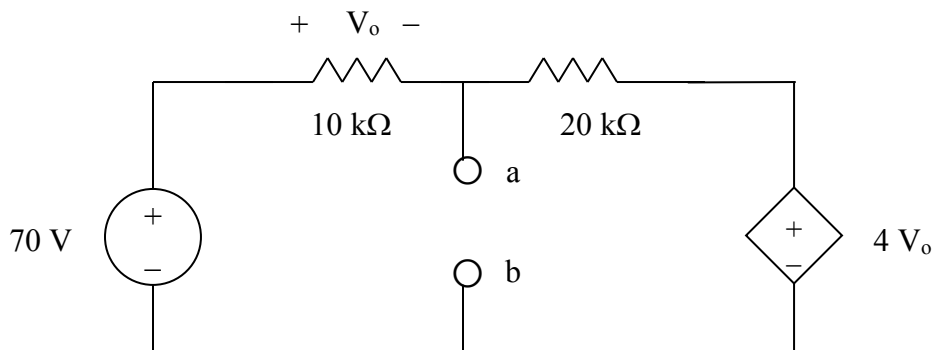
2. **[10 points]** For the circuit shown find the value of R_L that will result in
 (a) maximum voltage. What is that voltage?
 (b) maximum current. What is that current?
 (c) maximum power. What is that power?



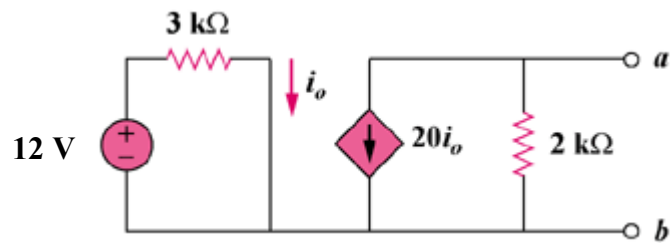
3. **[10 points]** The resistance R is adjusted until maximum power is delivered to the load consisting of R and the $12 \text{ k}\Omega$ resistor in parallel.
 (a) Find the required value of R
 (b) How much power is delivered to the load?



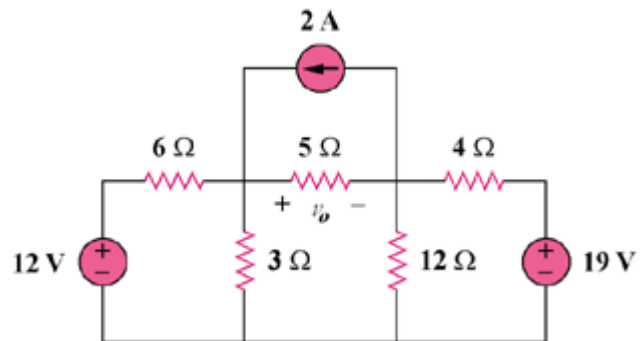
4. **[15 points]**
 Find the Thevenin equivalent at terminals a-b of the circuit.



5. [15 points] For the transistor model, obtain the Thevenin equivalent at terminals a - b .



6. [20 points] Determine v_o in the circuit using the superposition principle.



7. [20 points]
Use Norton's theorem to find V_o in the circuit below.

