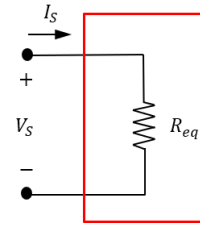
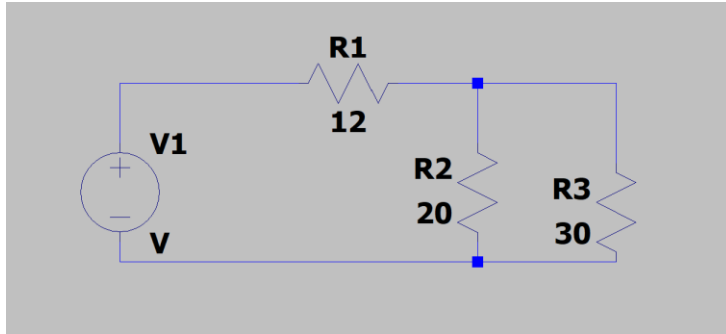
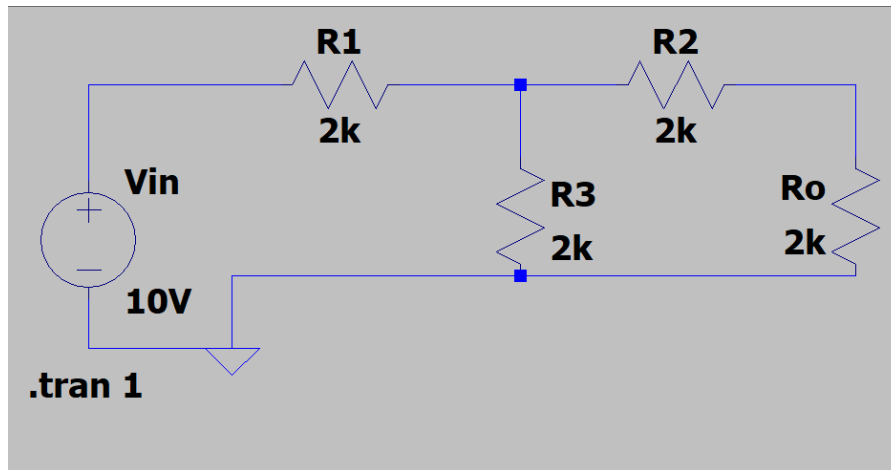


PART C: Pre-Lab

- C.1 Design a circuit (a network of resistors) that has an equivalent resistance of 24Ω using **all** the following three resistors: 12Ω , 20Ω , and 30Ω . Draw the circuit.



- C.2 For the circuit of Figure 3, choose values for resistors R_1 , R_2 , R_3 , and R_o (**all resistances must be greater than 1 kΩ**). Given that the voltage source $V_{in} = 10\text{ V}$ (show your work for each part):
- Determine the equivalent resistance R_{eq} for R_1 , R_2 , R_3 , and R_o in Figure 4.
All resistors = 2kΩ. $R_{eq} = 3333.33\Omega$
 - Find the current i_s .
0.003A
 - Use voltage divider to determine the voltage across resistor R_3 .
4V
 - Use voltage divider to find the output voltage V_o .
2V
 - Determine the proportionality coefficient K .
 $K = 2/5$
 - Simulate the circuit in Figure 3 with the selected resistor values using LTSpice, find all voltages and currents, including V_o . Include a printout of the LTSpice drawing and results.



Component	Voltage(V)	Current(mA)
Vin	10	3
R1	-6	3
R2	-2	1
R3	-4	2
Ro	-2	1

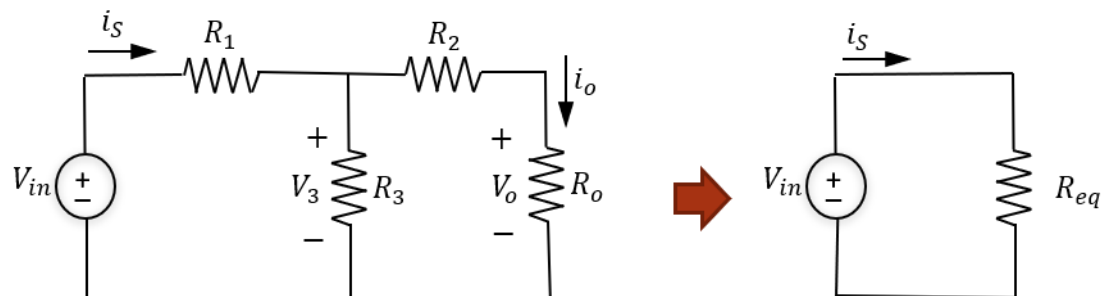


Figure 4: Equivalent circuits for the circuit in Figure 3