Write your name at the top right corner of every page (including this cover page).

Copy everything you want counted towards your grade onto the pages that I provided.

Write with a pen that cannot be erased!

No books or calculators are allowed!

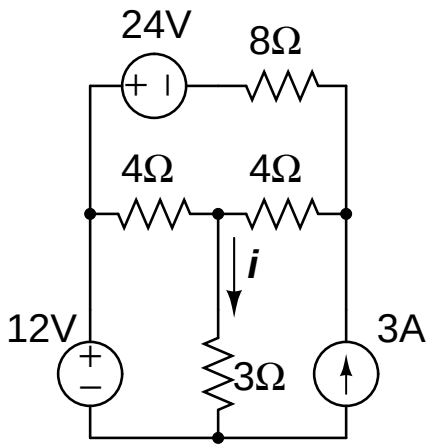
Write down all the steps that lead to your result.

Identify new variables that you may introduce in the circuit diagrams that I provided.

Read all the problems before you start so that you can begin with those that seem easiest to you.

Problem 1 (11 pts):

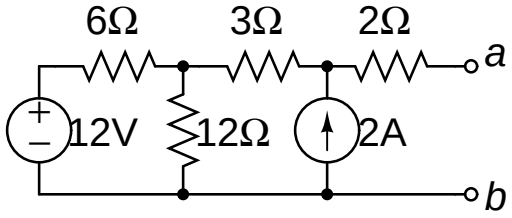
Find the current *i* in the circuit below and calculate how much each of the individual current and voltage sources contribute to this current.



(continuation of problem 1)

Problem 2 (10 pts):

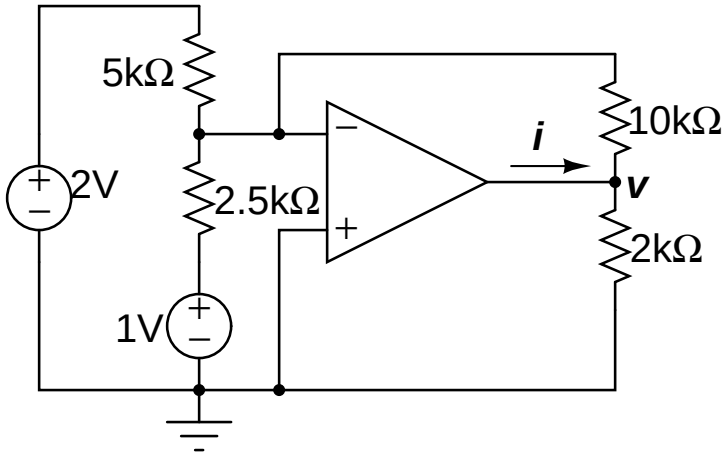
Find the Thevenin equivalent circuit for the circuit shown below. If you connect a load resistor R_L between the terminals *a* and *b*: Calculate the maximum power that can be dissipated in R_L. At what value for R_L is that maximum power transfer achieved?



(continuation of problem 2)

Problem 3 (6 pts):

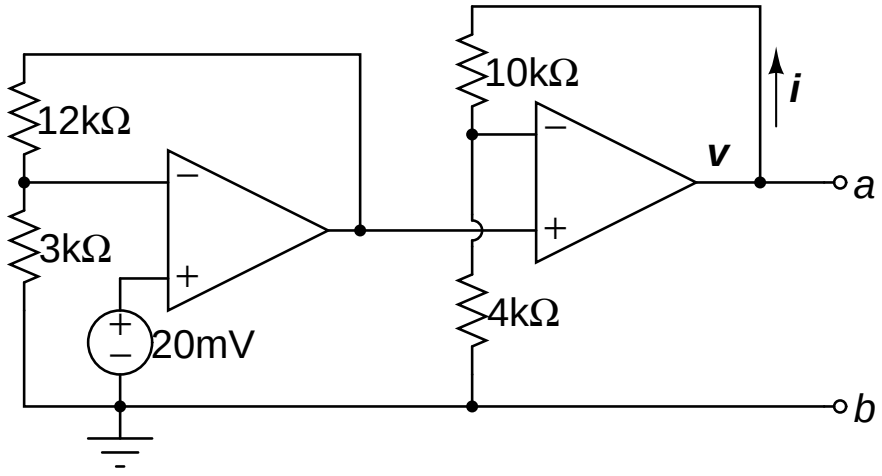
Calculate the current i and voltage v at the Op-Amp output for the circuit below.



(continuation of problem 3)

Problem 4 (9 pts):

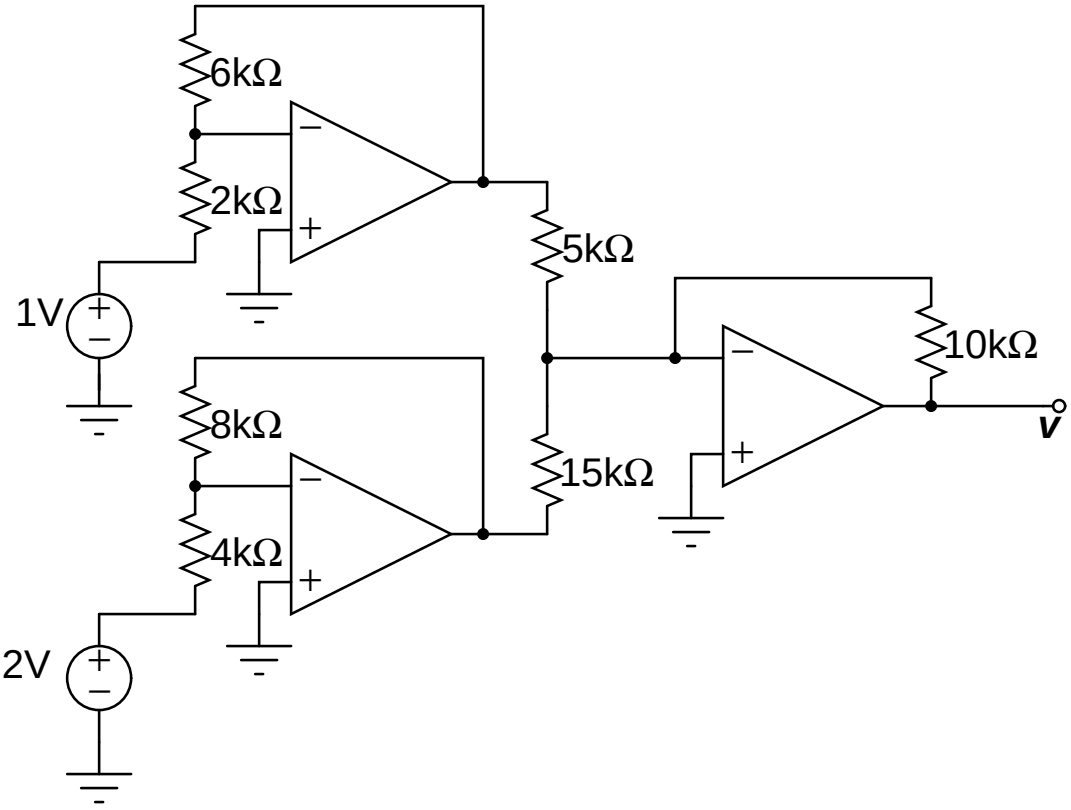
Calculate v and i in the circuit below. For ideal Op-Amps: How do the voltage v and the current i change when you connect a load resistor $R_L = 20\Omega$ between a and b?



(continuation of problem 4)

Problem 5 (8 pts):

What are the voltages at the three Op-Amp outputs?



(continuation of problem 5)