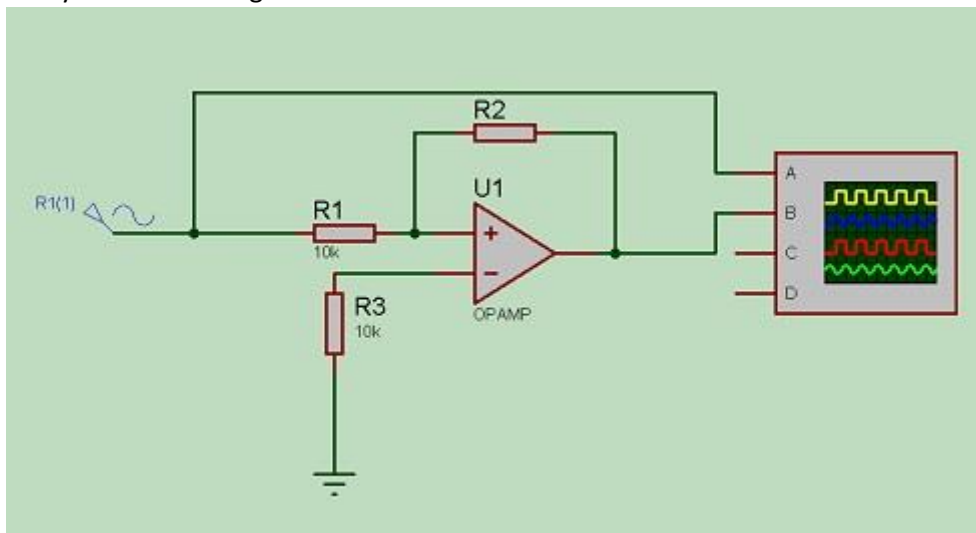


PROVIDED REPORT's filename should be your student number. Do not forget to write your name and number inside the report. You can solve the theoretical equations by hand, scan of it using apps like office lens and add to report as picture if easily **READABLE** otherwise use a related app for drawing equations like MS Word's equations. Unreadable equations will not be graded.

Q1)

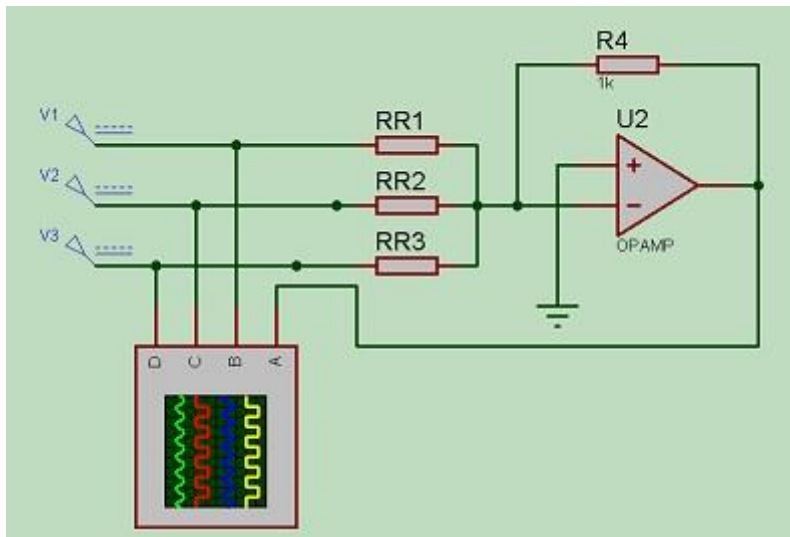
Analyze the following circuit:



- Find V_{out} as a function of V_{in} , $R1$ and $R2$. Solve the equations
- Calculate gain if V_{in} is 1V, $R1$ is 10k and $R2$ is last 3 digits of your student number * 1kOhm (if digit is 0 assume as 1) (example: if your last digit number is 023 then $R2$ is 123k)
- Draw the circuit in simulation environment, apply 1Khz and 1V sinus signal as input, $R1$ and $R2$ Values as values from b.
- Compare V_{in} and V_{out} using Oscilloscope in simulation environment
- Provide answers to these questions:
 - What is Feedback? What is it do? What kind of feedback is this circuit?
 - What is Virtual Ground? Solve the circuit using Virtual Ground
- Provide report containing theoretical calculations and simulations outputs (drawings, oscilloscope results etc.)

Q2)

Analyze the following circuit:



- Find V_{out} as a function of V_1 , V_2 , V_3 and Resistors. Solve the equations
- What this circuit may do? Answer it regarding to your findings on a.
- Draw the circuit in simulation environment Take V_1 , V_2 and V_3 DC voltages and RR_X resistors according to your last 3 digits of your student number. (If digit is 0, assume as 1.) (Volts and kOhms) and R_4 as 1k. (if your last 3 digits are 023 then, $RR_1 = 1k$, $RR_2 = 2k$ and $RR_3 = 3k$ this rule applies to voltage values vice versa)
- Compare V^- and V_{out} using Oscilloscope in simulation environment
- Provide report containing theoretical calculations and simulations outputs (drawings, oscilloscope results etc.)