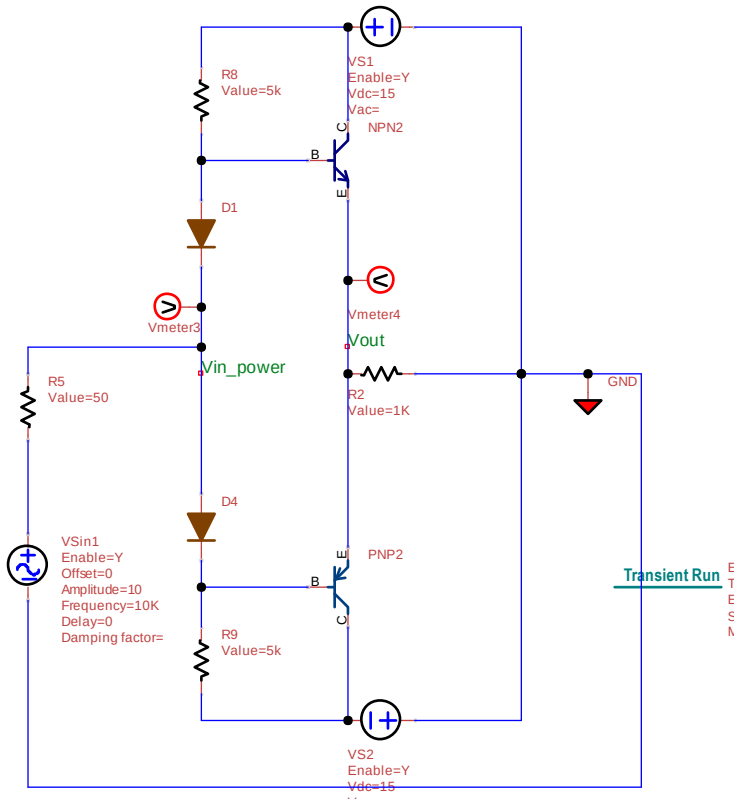
ENEE 307: Lab 3 Upgrades, Fall 2022

1) Set up a Push-Pull Power Amp using CoolSPICE. Use power rails VCC= + 15 and VEE=-15V. Use a two transistors 2N3904 and a 2N3906.

a) Does your circuit operate without distortion? If so, calculate the power used in the load resistor R2 at the output.
b) Reduce the value of R2 until you see distortion. What is the maximum power you can provide to R2 before distortion sets in. Keep Vin amplitude at 10V.
c) Adjust the circuit to see if you can make improvements so you can operate with the reduced value of R2 without having distortion.
In your write-up show the signals at the output, with and without distortion.



2) Instead of using the operational amplifiers in the regular section of Lab 3 to provide the Voltage Gain, use a BJT amplifier like you designed in Lab 2. Feed the BJT amp directly into the input of the power amp above. Try setting up the DC bias using both positive and negative supply rails to get a large AC swing. Analyze the circuit using BJT amplifier design equations like those in Lab 2 and compare the results with your CoolSPICE simulations. How do they compare?