

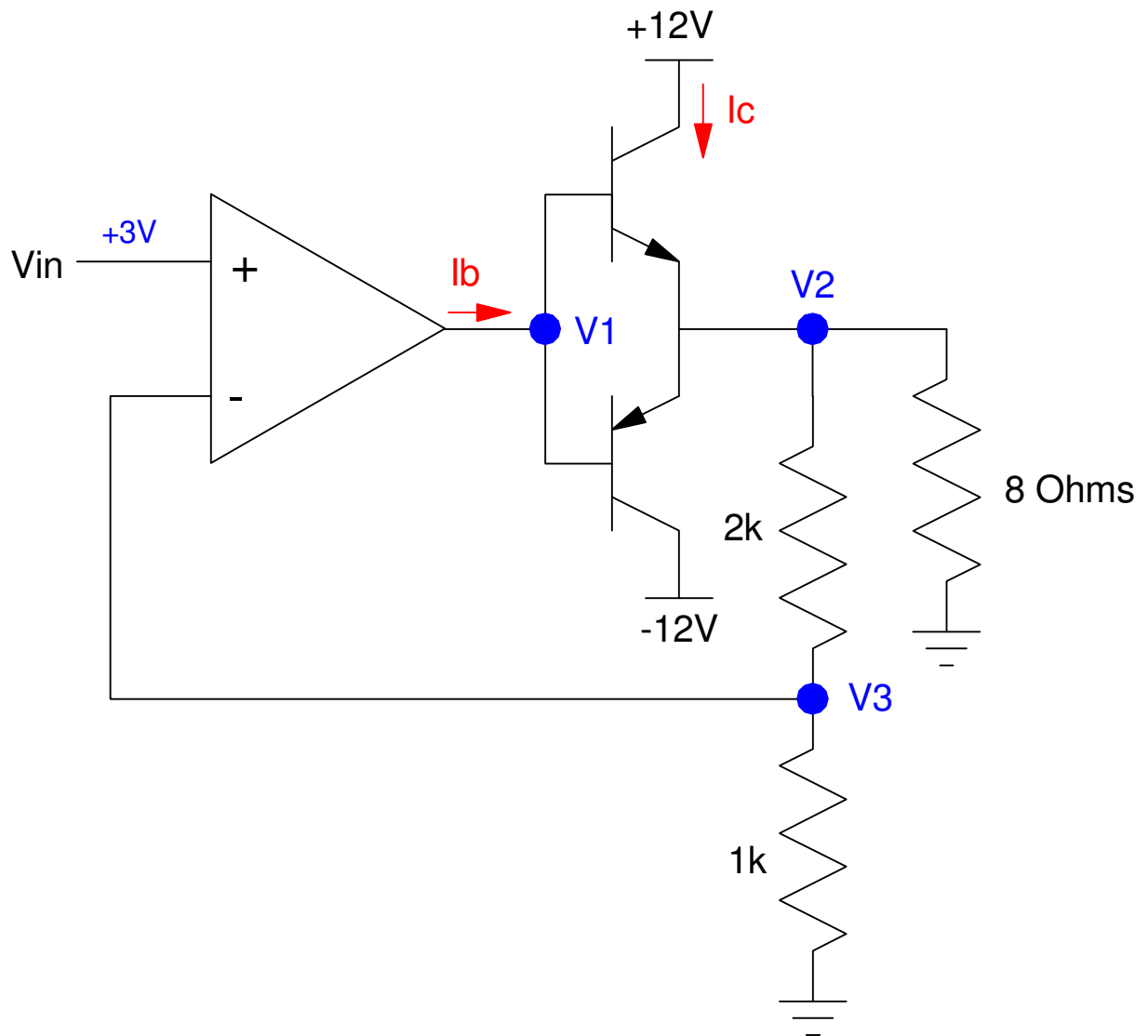
# ECE 321 - Quiz #1 - Name \_\_\_\_\_

Push-Pull Amplifiers, Op-Amp Amplifiers, Temperature Sensors. Fall 2019

1) Push-Pull: Determine the voltages and currents for the following push-pull amplifier. Assume TIP transistors

- $V_{be} = 1.4V$
- $\beta = 1000$

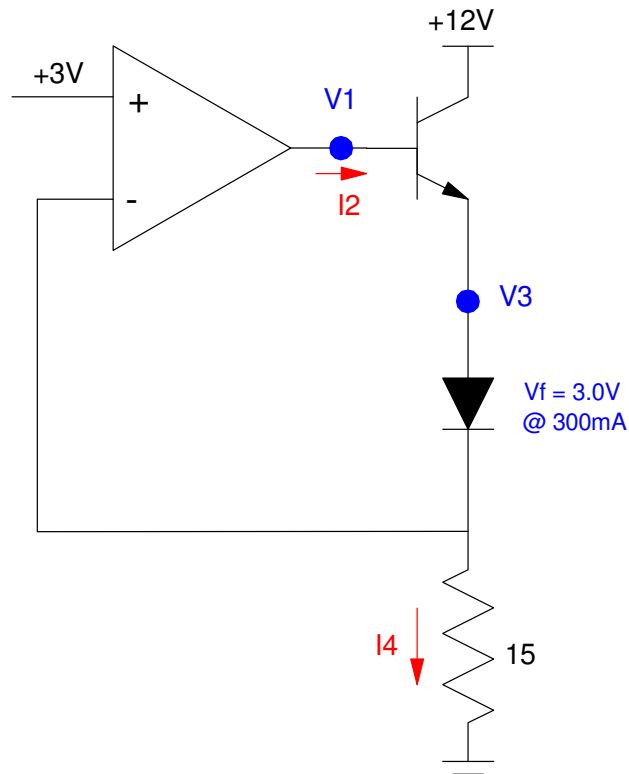
V1	V2	V3	Ib	Ic



2) Push-Pull: Determine the voltages and currents for the following amplifier. Assume TIP transistors

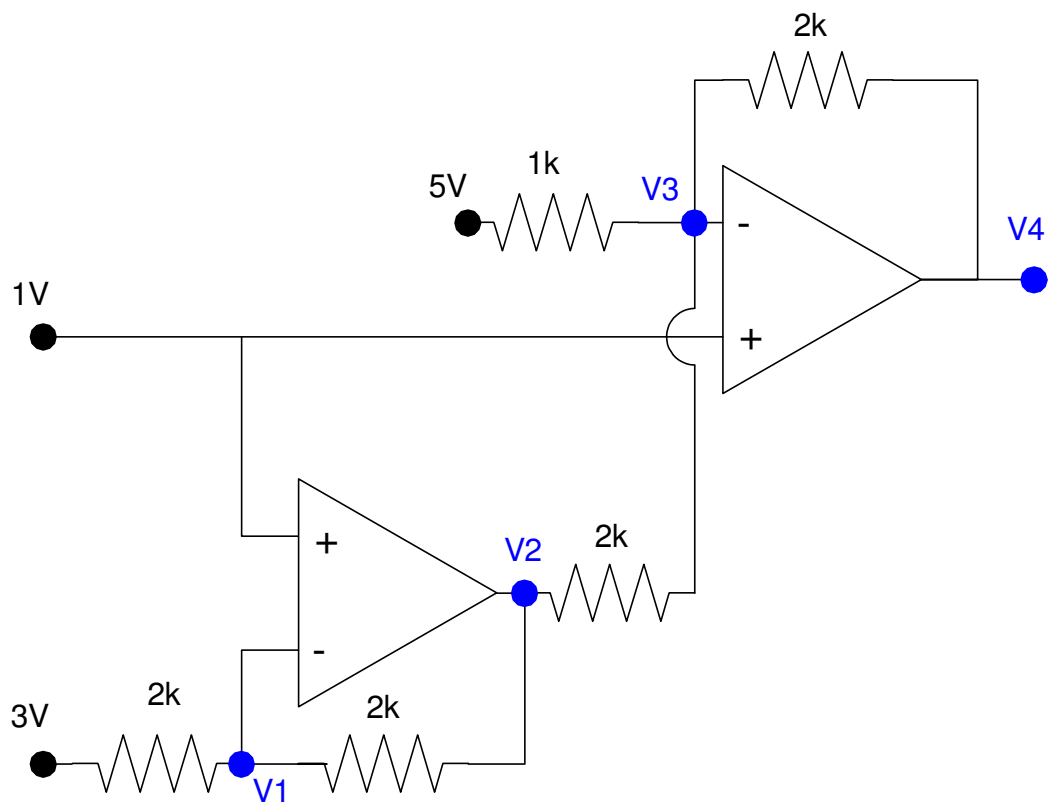
- $V_{be1} = 1.4V$
- $\beta = 1000$

V1	I2	V3	I4

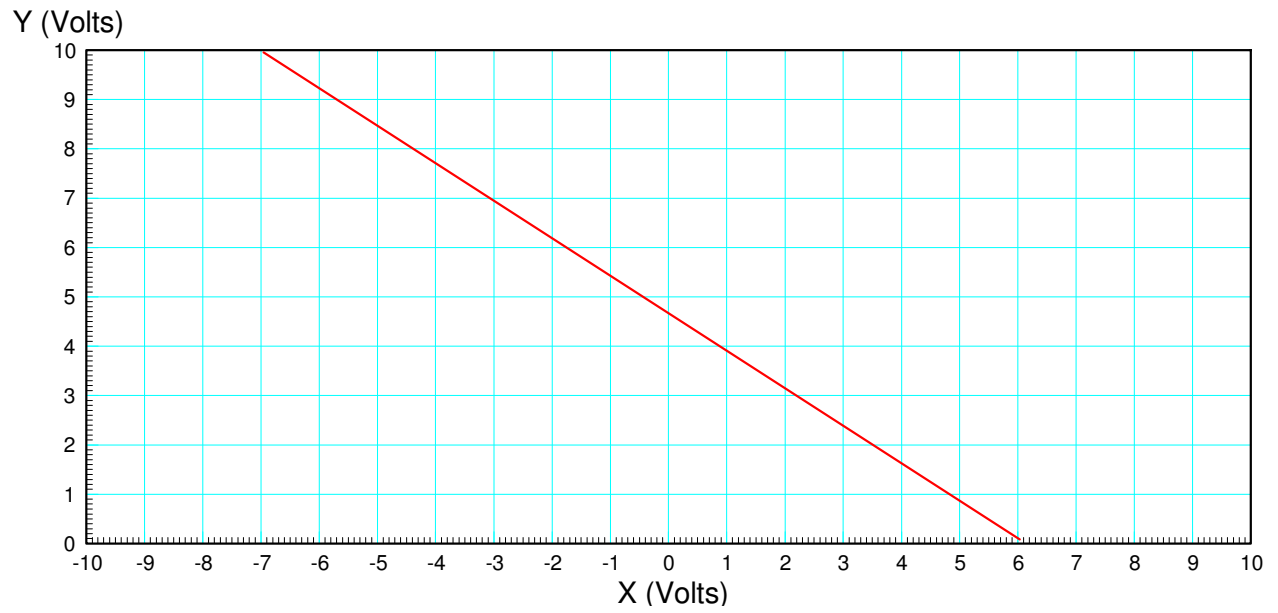


3) Determine the voltages for the following op-amp circuit. Assume ideal op-amps

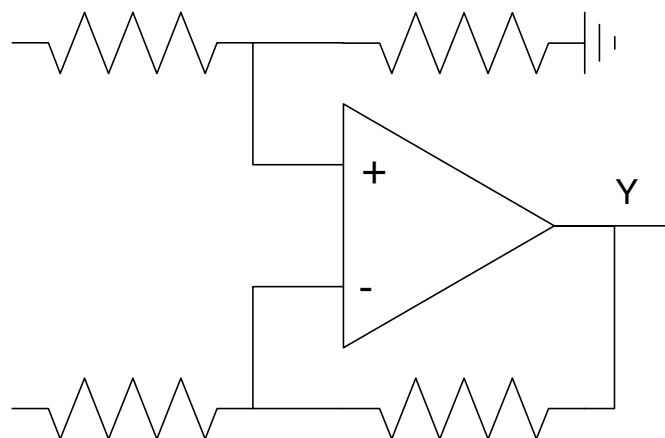
V1	V2	V3	V4



4a) Determine the relationship between X and Y



4b) Design an amplifier to implement this function

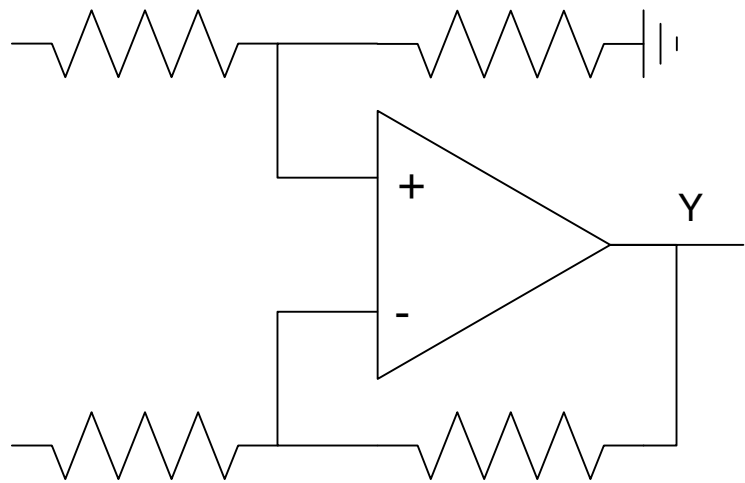
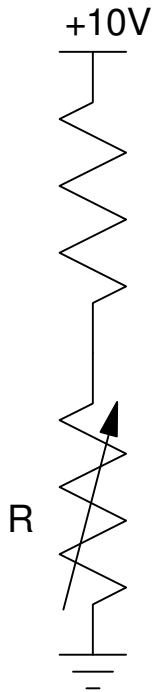


5) An RTD has the following temperature - resistance relationship

$$R = 1000 \cdot (1 + 0.0043T) \Omega$$

where T is the temperature in degrees C. Design a circuit which outputs

- -10V at -50C and
- +10V at +50C



Phinneas and Ferb Bonus! What was the purpose of the Copy-and-Paste-Inator?

- Automate the writing of English papers when Dr. Doofenschmirtz was in college
- Make a copy of Dr. Doofenschmirtz so he wouldn't have to wait in lines any more.
- Speed up the process of getting a drivers license
- Humiliate Dr. Doofenschmirtz's older brother by posting his award speech all over the city