

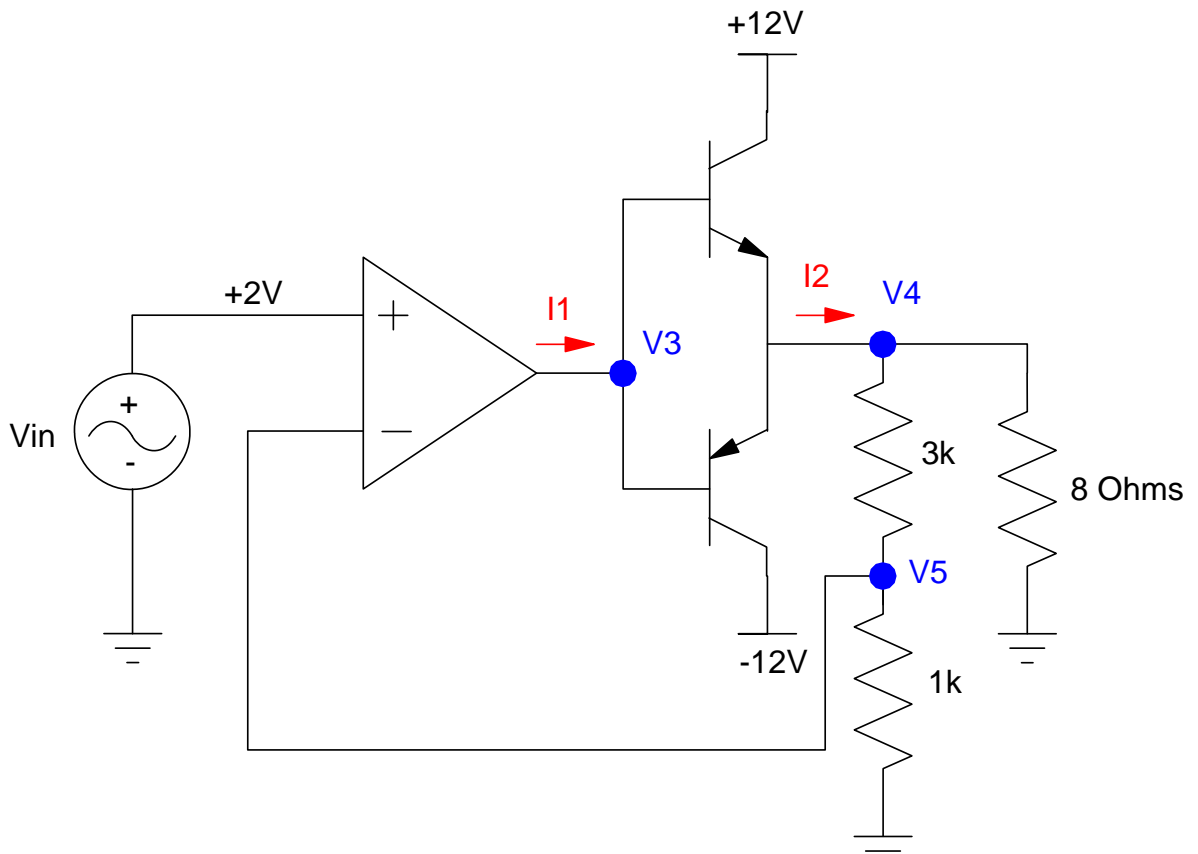
ECE 321 - Quiz #1 - Name _____

Push-Pull Amplifiers, Op-Amp Amplifiers, April 4, 2019

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

- $\beta = 1000$
- $|V_{be}| = 1.4V$
- $\min(|V_{ce}|) = 0.9V$

I1	I2	V3	V4	V5



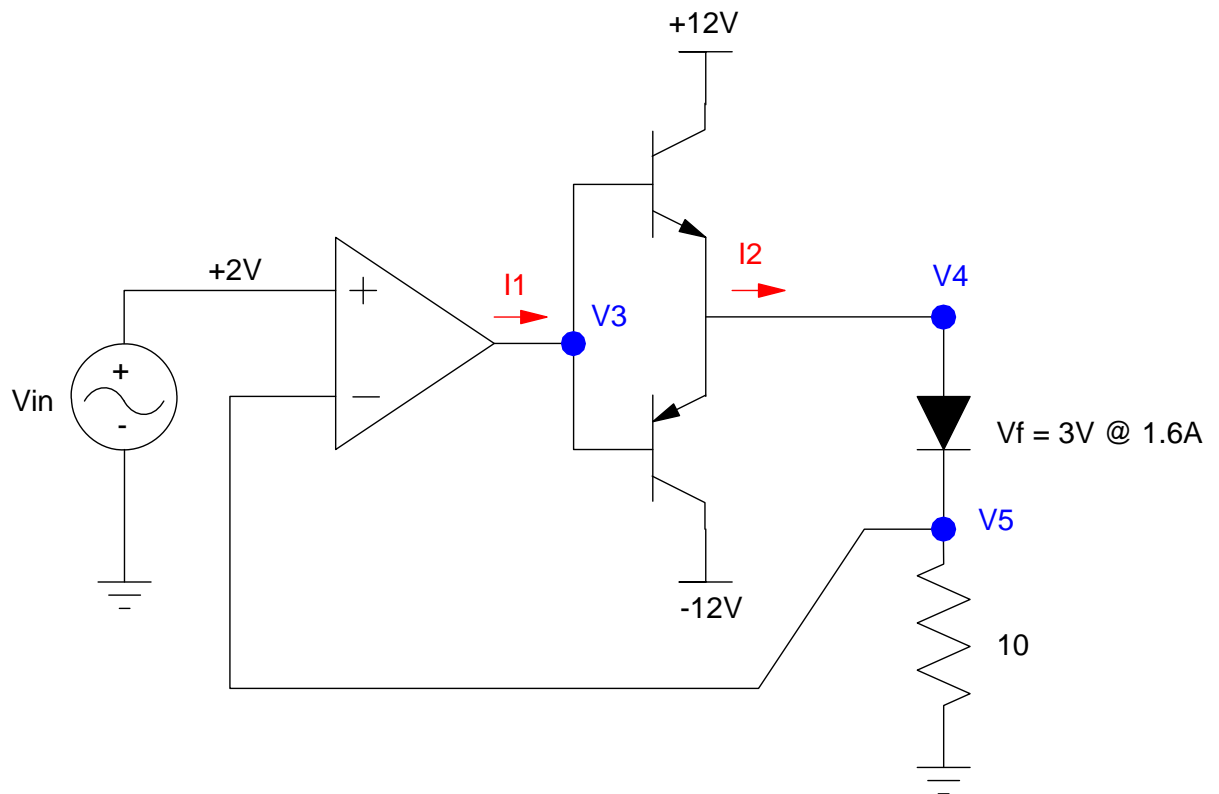
2) Determine the voltages and currents for the following current amplifier. Assume TIP112 transistors:

- $\beta = 1000$
- $V_{be} = 1.4V$
- $\min(V_{ce}) = 0.9V$

Also assume a 5W white LED

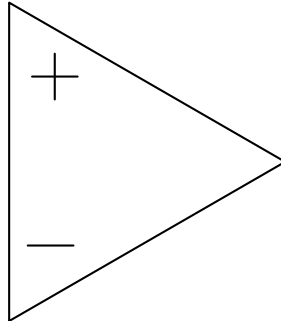
- $V_f = 3.0V @ 1.6A$

I1	I2	V3	V4	V5



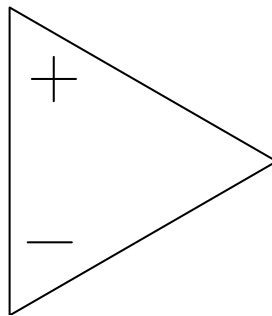
3a) Design an op-amp circuit with a gain of +6

$$Y = 6X$$

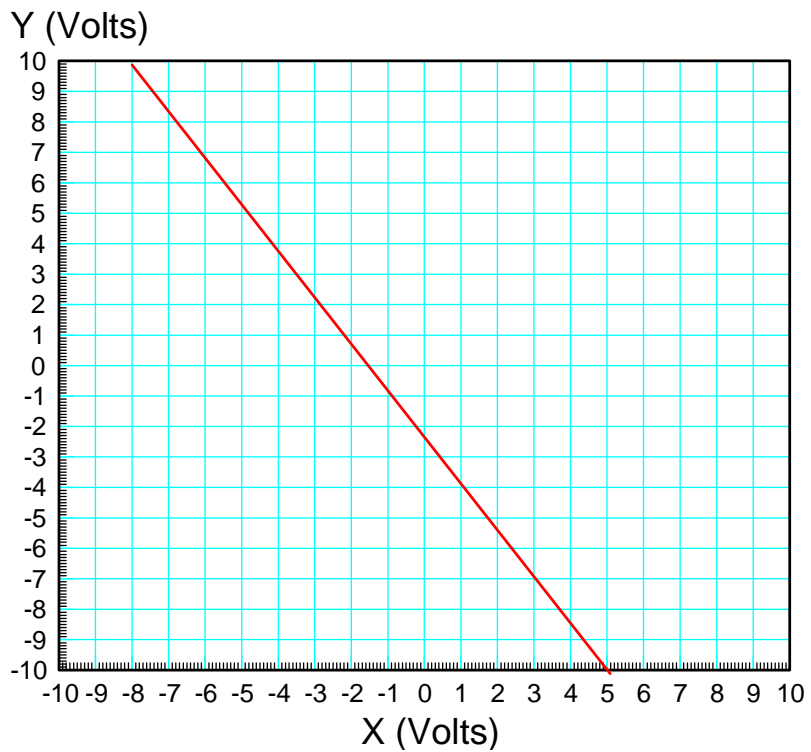


3b) Design an op-amp circuit with a gain of -6

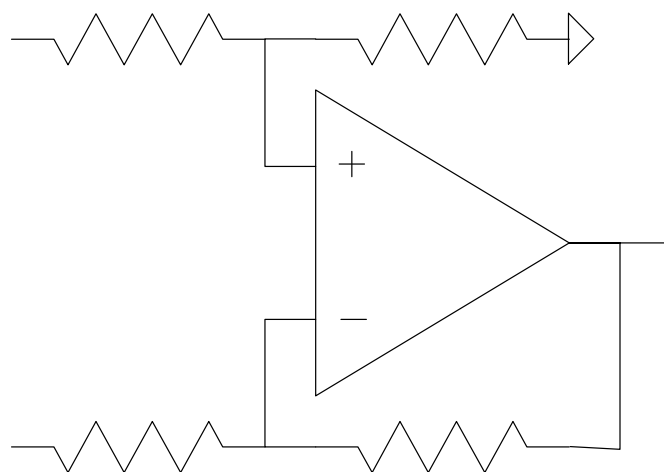
$$Y = -6X$$



4a) Determine the relationship between X and Y from the following graph.

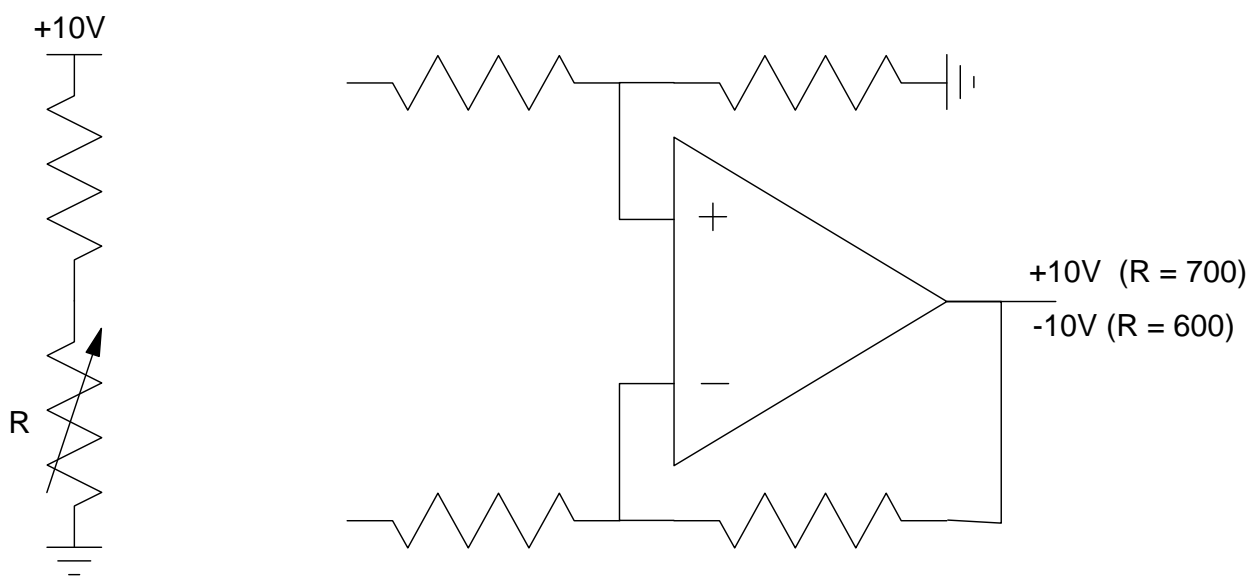


4b) Design an op-amp circuit to match the following relationship between X and Y:



5) Design a circuit which outputs

- -10V when $R = 600$ Ohms
- +10V when $R = 700$ Ohms



Single Payer Trivia!!! What is the combined annual salary of the top 65 executives of insurance companies?