1. Design a series-shunt feedback amplifier using BJTs. Design specification is $1/b = 11.2$ where $b$ is the feedback factor. Use dc power supplies of ±15 V. Use: $R_1 = 28\,\text{k}\Omega$, $R_2 = 15\,\text{k}\Omega$, $R_5 = 20\,\text{k}\Omega$, $R_6 = 5.1\,\text{k}\Omega$, $R_7 = 1.8\,\text{k}\Omega$, and $R_8 = 100\,\Omega$. Assume that $R_g$ is zero and that $C_1 = C_2 = C_3 = 100\,\mu\text{F}$. Determine the open loop gain $A$ and the closed loop gain $A_v$. Determine the open loop gain and closed loop gains if an enormous capacitor were placed from the emitter of $Q_2$ to ground. Verify the design with a SPICE simulation (perform a DC, AC, and transient analysis). Use the default SPICE parameters for the 2N3904 and 2N3906 transistors. What would be the closed loop gain if $A = \infty$?