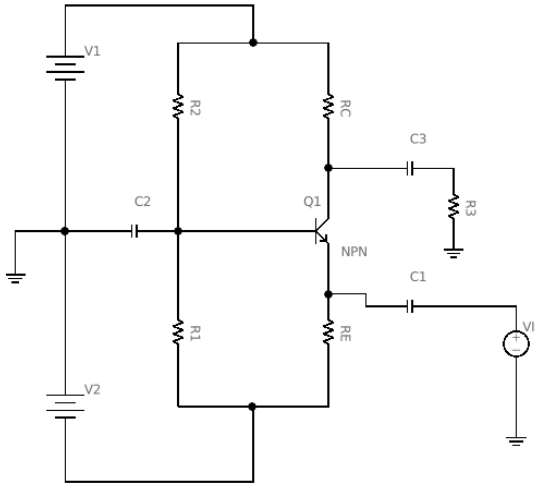
1. What are the definitions and equations of **Voltage Gain**, **Current Gain**, **Power Gain**.

2. What are the impedances of a capacitor, inductor, and resistor? What are the DC equivalent? What are the high frequency equivalent?

3. Know CC, CE, CB, CD, CG, CS amplifiers: what they look like, where the input comes in, where the output leaves, R_{in}, R_{out}, f_H, f_L, etc.

4. What is the Q-pt, r_m, r_o, r_π, μ_f, voltage gain, input and output resistance, and short circuit time constant f_L of the amplifier in Figure P13.11 (page 740) with the following parameters: $R_G = 121\text{k}\Omega, R_4 = 5.23\text{k}\Omega, R_3 = 20\text{k}\Omega, R_D = 6.04\text{k}\Omega, R_S = 4.75\text{k}\Omega, R_I = 1\text{k}\Omega, C_1 = 100\text{pF}, C_2 = 4.7\mu\text{F}, C_3 = 50\text{pF}, V_{CC} = 10\text{V}, V_{EE} = -10\text{V}, K_n^{'} = 50\mu\,\text{A/V}^2, \frac{W}{L} = 10, V_{TN} = 1\text{V}, \lambda = 0$. What type of amplifier is this: common-collector, common-emitter, common-base? Is the amplifier inverting or non-inverting?

5. What is the Q-pt, r_m, r_o, r_π, μ_f, voltage gain, input and output resistance and short circuit time constant f_L, open circuit time constant f_H, and bandwidth of the amplifier below with the following parameters: $R_1 = 20\text{k}\Omega, R_2 = 6.04\text{k}\Omega, R_3 = 20\text{k}\Omega, R_C = 10\text{k}\Omega, R_E = 33.2\text{k}\Omega, C_1 = 33\text{pF}, C_2 = 0.20\mu\text{F}, C_3 = 820\text{pF}, C_\mu = 5.6\text{pF}, C_\pi = 8.2\text{pF}, V_1 = 9\text{V}, V_2 = 9\text{V}$. What type of amplifier is this: common-collector, common-emitter, common-base? Is the amplifier inverting or non-inverting?



6. What are the Q-pt, r_m, r_o, r_π, voltage gain, input and output resistance, short circuit time constant f_L: Q_1's$\frac{W}{L} = 10$, $R_1 = R_5 = R_9 = 100\text{k}\Omega$, $R_2 = R_6 = R_{10} = 75\text{k}\Omega$, $R_3 = R_7 = R_{11} = 22.1\text{k}\Omega$, $R_4 = R_8 = R_{12} = 46\text{k}\Omega$, $R_{13} = 10\text{k}\Omega$, $V_{CC} = V_{EE} = 15\text{V}$, $C_1 = C_3 = C_6 = C_7 = 10\text{uF}$, $C_2 = 28\text{uF}$, $C_4 = 40\text{uF}$, $C_6 = 100\text{uF}$, $K_n^{'} = 50\mu\,\text{A/V}^2$, $V_{TN} = 1\text{V}$, $\lambda = 0$. Is the overall amplifier inverting or non-inverting?