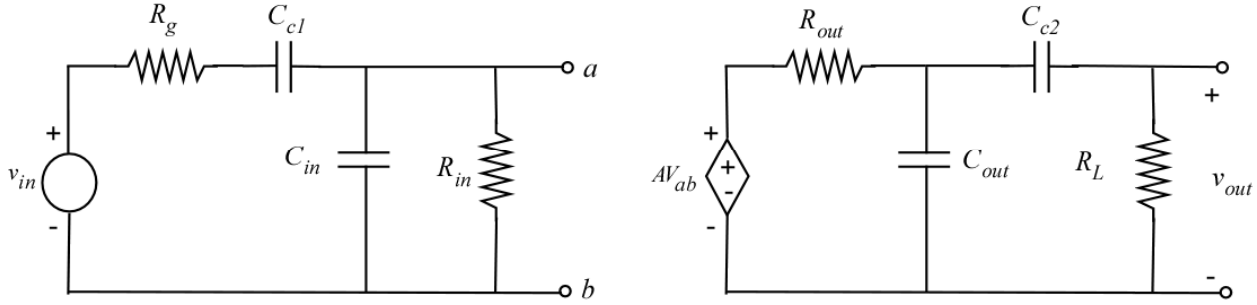
ECE 342: Electronic Circuits **Summer 2026**
Problem Set #8 **Due Date: 5pm, Tue, Jul 21, 2026**

1. Write the frequency-dependent expression for voltage gain for the amplifier shown below at higher frequencies. Assume the following element values are used: R_g = 200 Ω, R_{in} = 12 kΩ, R_{out} = 3 kΩ, R_L = 10 kΩ, C_{c1}=5 μF, C_{c2} = 1 μF, C_{in} =200 pF, and C_{out} = 40 pF. The value of A is 160 V/V.



2. Plot the asymptotic frequency magnitude response for the gain

$$A = 42\frac{3.2 + j\dfrac{f}{15}}{3.8 + j0.00024f}\ .$$

3. Plot the asymptotic frequency magnitude response for the gain

$$A = 12\frac{5 + j\dfrac{f}{10}}{\left(8 + j\dfrac{f}{45}\right)\left(2 + j\dfrac{f}{50,000}\right)}$$

4. Write the expression for voltage as a function of frequency for the response plotted in the figure. Calculate the upper 3-dB frequency.