

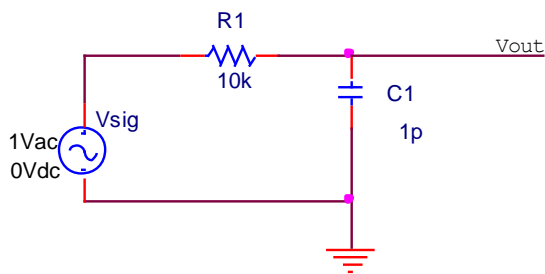
## Homework 6

Name \_\_\_\_\_ ID \_\_\_\_\_

Consider 4 circuits shown below. For each circuit

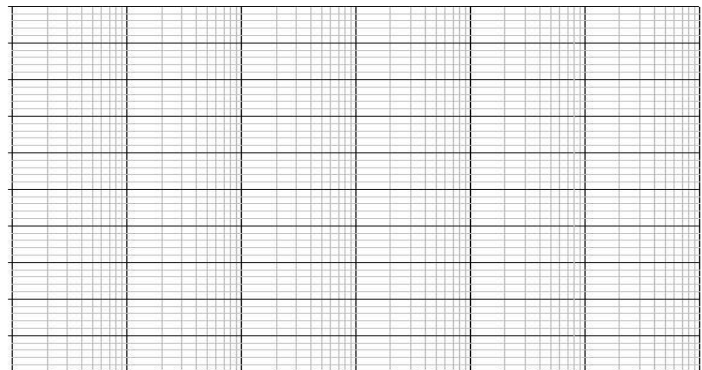
1. Estimate the time constants formed by a 1 pF capacitor and 1 or 2 resistors with values specified in the schematics. Obtain expressions for the circuit transfer functions using voltage divider approach and complex impedances. Specify the frequencies of poles and zeros (if any) for each circuit.
2. Sketch an asymptotic behavior of the transfer function for each circuit **in scale** using the provided templates: obtain the Bode plots for both magnitude and phase responses in the frequency range from 10 kHz to 10 GHz. Show your scales for magnitude and phase angles of the transfer functions.

Circuit 1 (1 point)

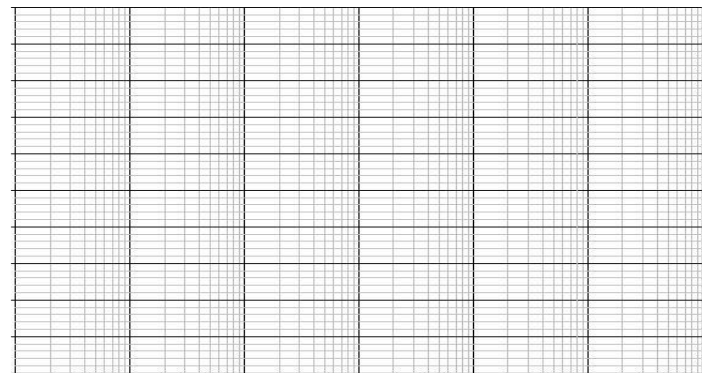


10k 100k 1M 10M 100M 1G 10G

Magnitude (dB)

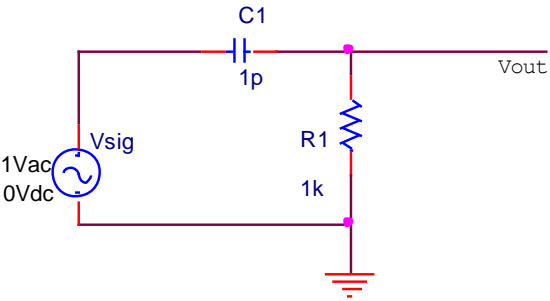


Phase (deg)



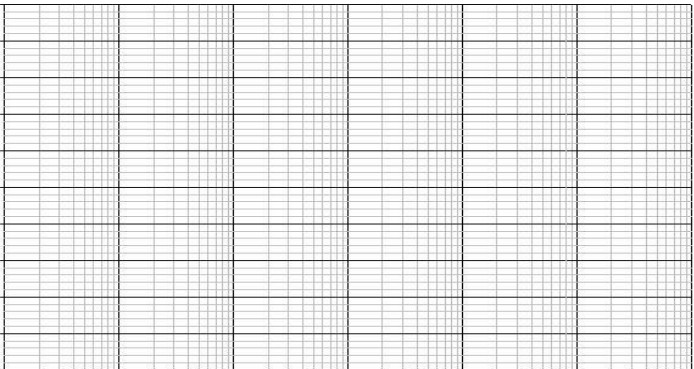
Correct Direction Order

Circuit 2 (2 points)

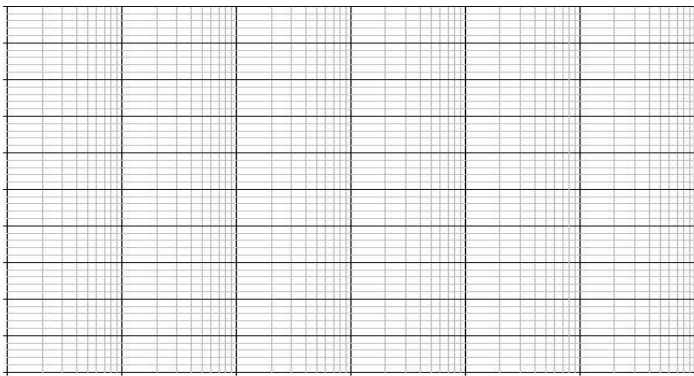


10k    100k    1M    10M    100M    1G    10G

Magnitude (dB)

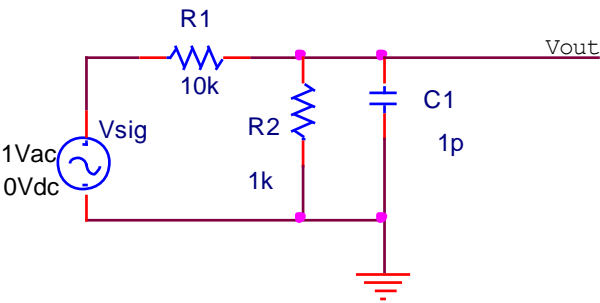


Phase (deg)



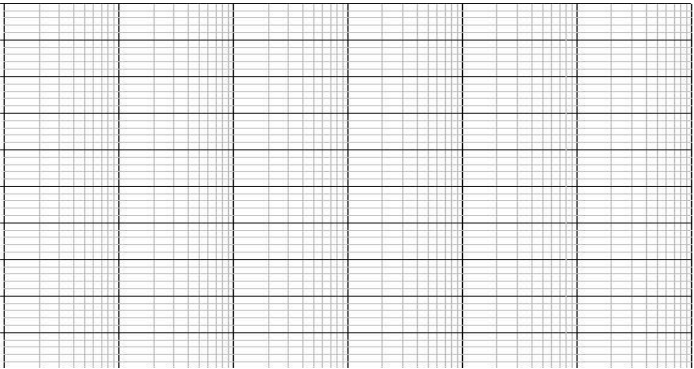
Correct Direction Order

Circuit 3 (3 points)

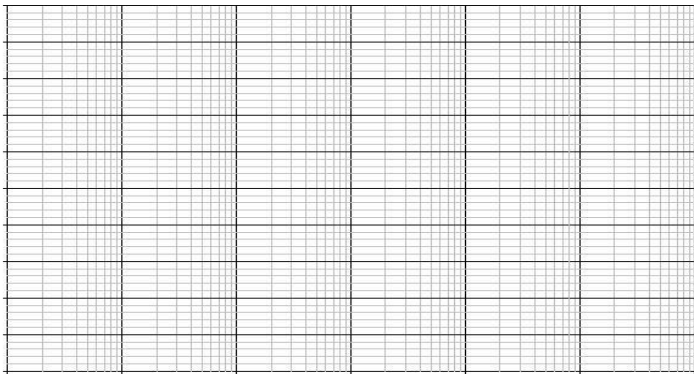


10k 100k 1M 10M 100M 1G 10G

Magnitude (dB)

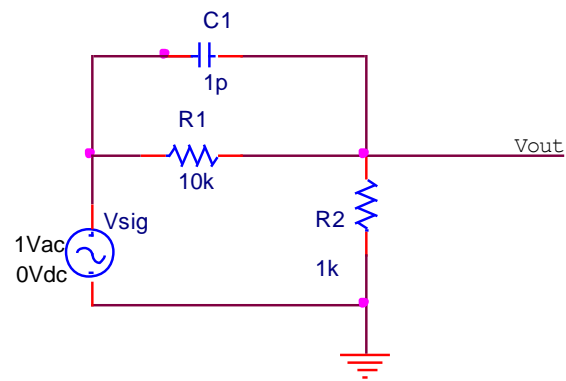


Phase (deg)



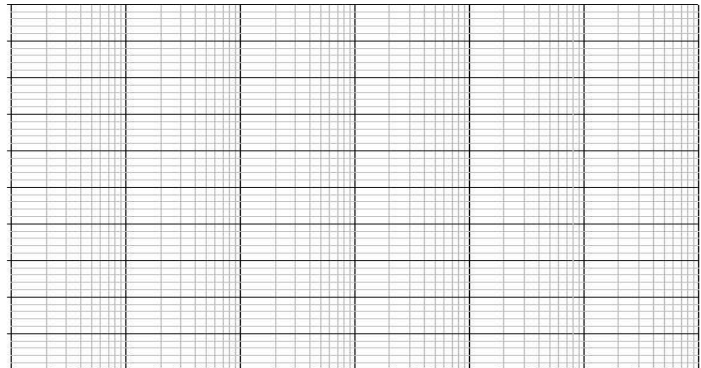
Correct Direction Order

Circuit 4 (4 points)

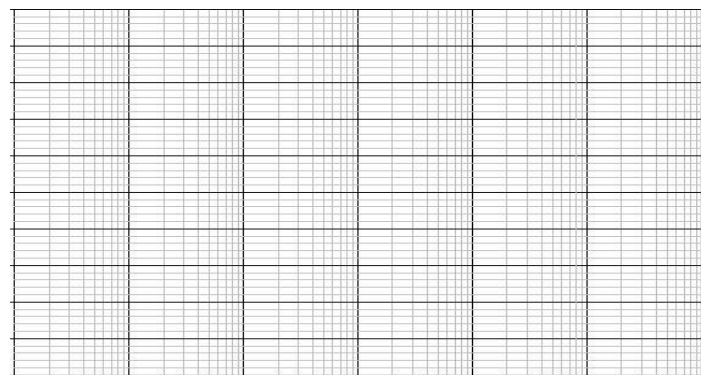


1k 10k 100k 1M 10M 100M 1G

Magnitude (dB)



Phase (deg)



Correct Direction Order