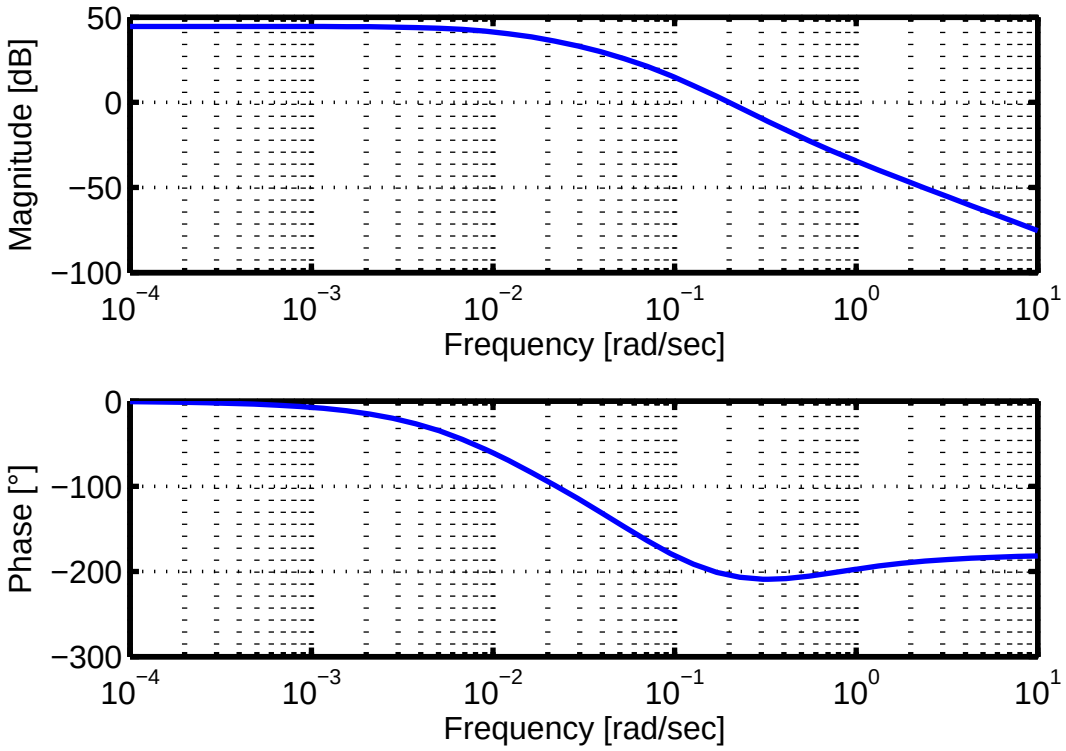
Laboratory 8: Bode Plot

Problem 18:

Assume the transfer function $G(s) = \dfrac{340\,s + 170}{20\,000\,s^3 + 3\,200\,s^2 + 130\,s + 1}$ is given.

a. Determine the pole-zero representation and the time-constant representation of $G(s)$.

b. The following figure shows the bode plot of $G(s)$. Assume that the input signal $u(t) = 5\sin(0.02\,t) + 3\sin(0.1\,t + \pi/2)$ is applied to the transfer block with transfer function $G(s)$. Determine the output signal $y(t)$ using the bode plot.



c. Verify the magnitude and phase values in the bode plot for the frequencies $\omega = 0.02, 0.1, 0.2, 1$.