Lecture 8, Oct 4, 2023

Bode Plot Example

- $H(s) = -\dfrac{s(s+100)(s+10000)}{(s+10)(s+500)(s+1000)}$
- Note the phase plot will be a bit more complex since the negative sign introduces a 180° phase shift
- For the magnitude plot:
  - Since the smallest pole/zero is at 10, we can use the simplification to find the initial magnitude
    - $K_{start} = (1)\dfrac{(100)(10000)}{(10)(500)(1000)} = \dfrac{1}{5} = -14\text{dB}$
  - The starting slope is +20dB per decade from the single zero at zero frequency
- For the phase plot:
  - The starting phase shift is 90° from the zero at the origin, plus or minus 180° due to the negative sign; we will choose −90°