Bode Plots: Quick Method for Sketching Frequency Response
Magnitude and Phase

Method:
1. Factor numerator and denominator of \(H(j\omega)\)
2. Sketch asymptotes for each zero and pole term
3. Add them up!

Basic Forms

\[ K: \text{Constant} \]

\[ j\omega: \text{Zero at origin} \]

\[ \frac{1}{j\omega}: \text{Pole at origin} \]

\[ H(j\omega) = \frac{1 + j\omega}{w_0} : \text{Zero at } -w_0 \]

\[ \frac{1}{1 + j\omega/w_0} : \text{Pole at } w_0 \]

\[ 1 + 2j\frac{\omega}{w_N} + \left(\frac{j\omega}{w_N}\right)^2 \]

\[ \frac{1}{1 + 2j\frac{\omega}{w_N} + \left(\frac{j\omega}{w_N}\right)^2} \]