

Title:

Additional notes: Bode Plot.

Consider:

$$G(j\omega) = \frac{K_m (1+j\omega T_1)(1+j\omega T_2)^r \dots}{(j\omega)^m (1+j\omega T_a) \left[1 + \frac{2\zeta}{\omega_n} j\omega + \left(\frac{1}{\omega_n^2} \right) (j\omega)^2 \right]}$$

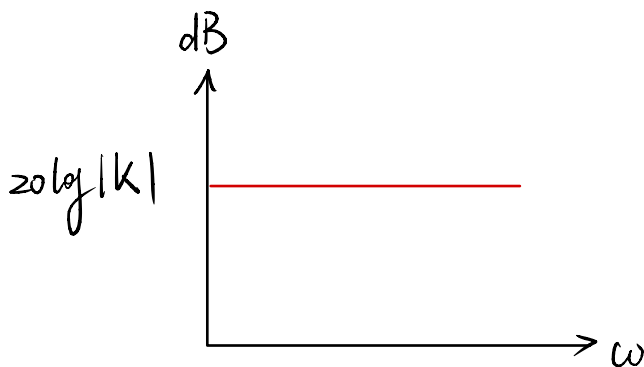
△ 比例 (Gain) K_m

$$G(j\omega) = K_m$$

$$20 \log |K_m| \text{ [dB]}$$

⊗ 一条直线

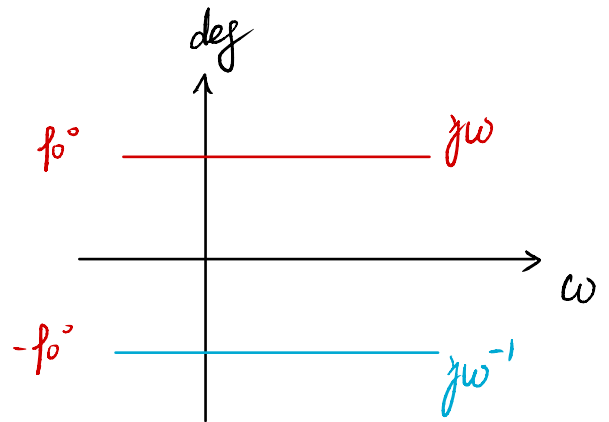
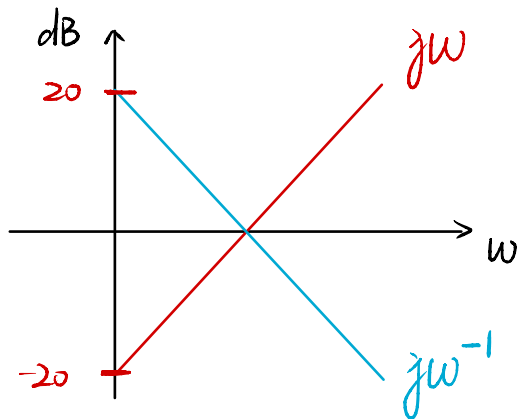
⊗ 当 $K_m = \text{positive}$ 时, $\Rightarrow \text{phase} = 0$



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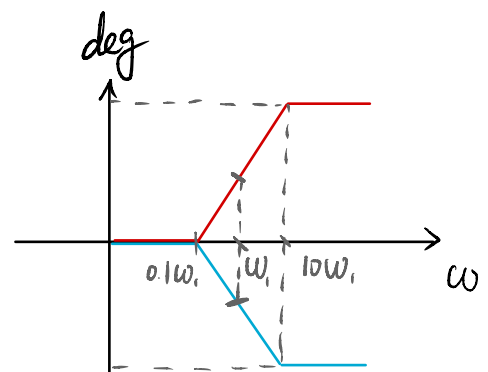
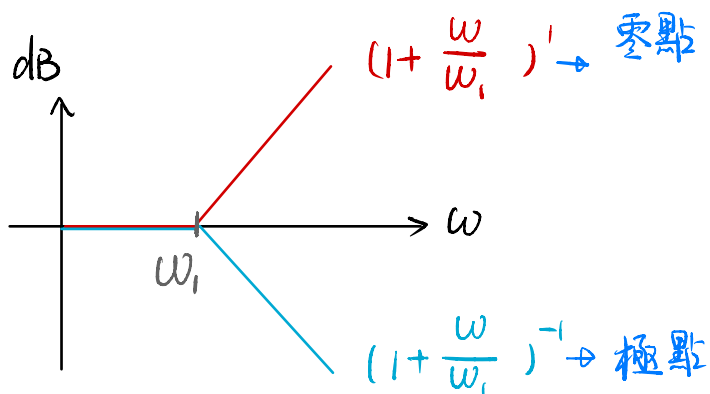
△ 原點處極點

$$G(j\omega) = (j\omega)^{\pm 1}$$



△ 極點、零點

$$G(j\omega) = \left(1 + \frac{\omega}{\omega_i}\right)^{\pm 1}$$



Title :

△ 複極點 (complex poles)

$$G(j\omega) = (1 + j2\zeta u - u^2)^{-1}$$

$$0.1 < \zeta < 1, \quad u = \frac{\omega}{\omega_n} = 1$$

