Friday, October 26, 2018 9:59 AM

One more eqn: $\alpha = G_1\sqrt{\frac{R5C_3}{C_4(G_1+G_2)}}$

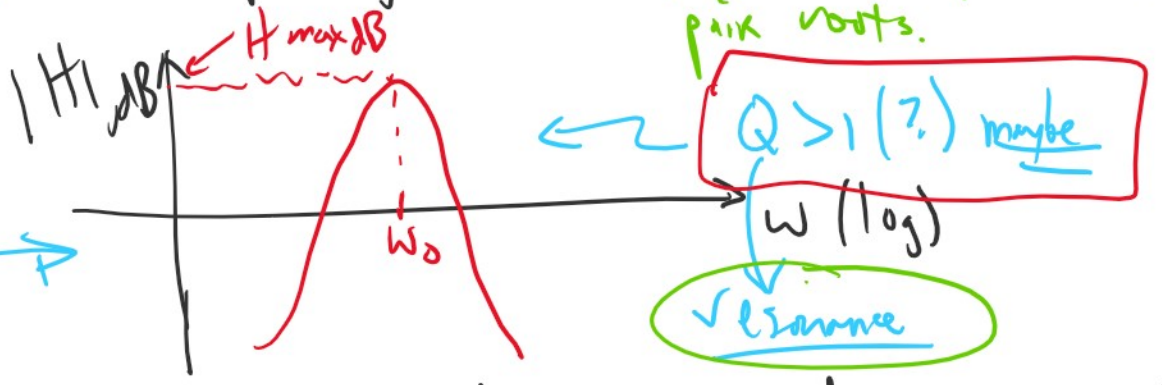
$A_0 = \alpha Q$

what if? $(|K|>1)$

$K = |K|\angle\pm 180°$

zero DC w/ 0dB crossing @ ω_0/α

$H(A) = \frac{-K(A/\omega_0/\alpha)}{\left\{\left(A/\omega_0\right)^2 + \frac{1}{Q}\left(A/\omega_0\right) + 1\right\}}$ ← for the given component values, this has complex conjugate pair roots.



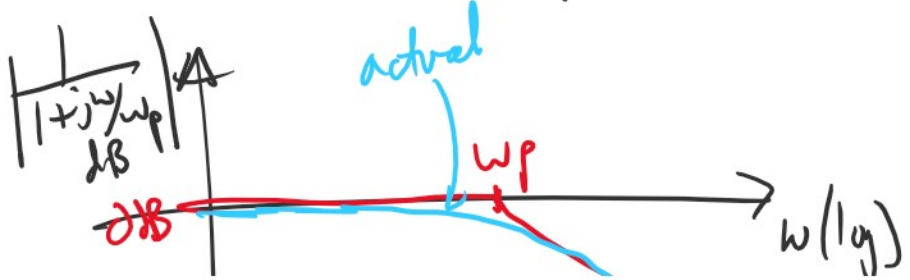
$Q > 1$ (?) maybe

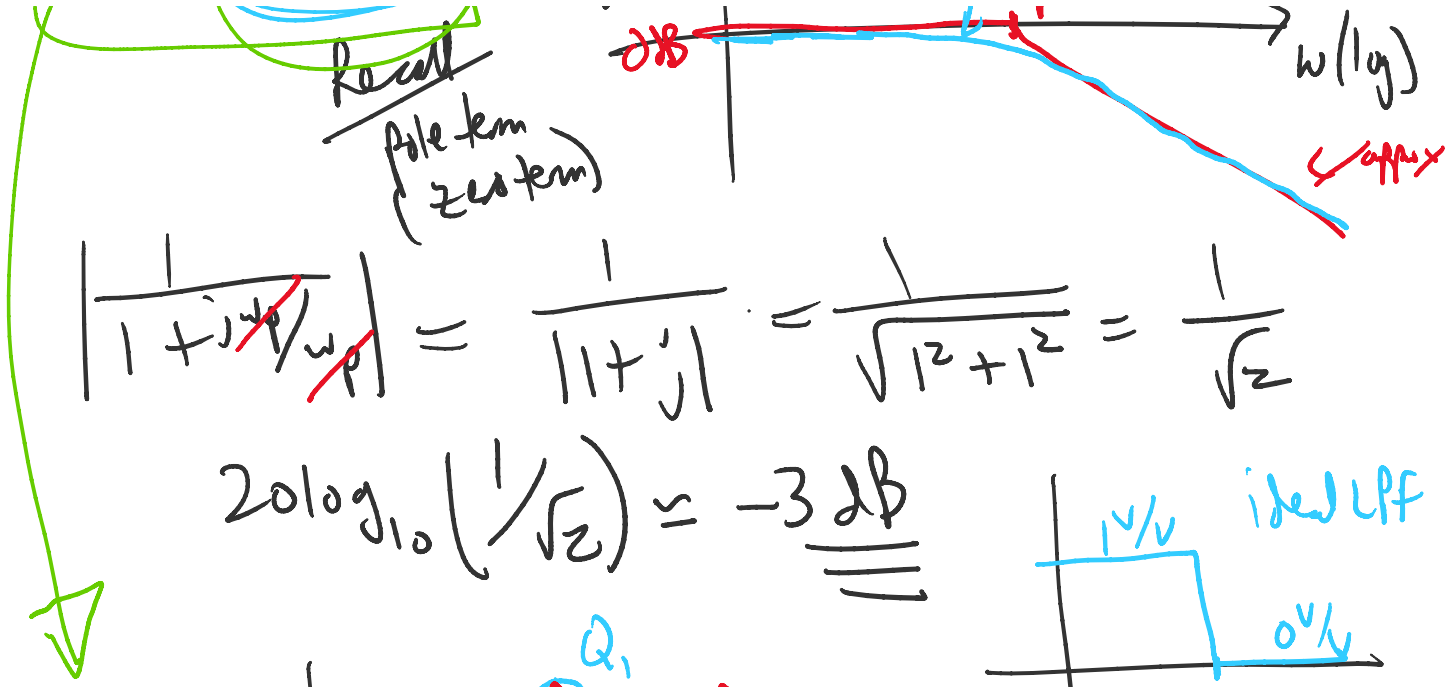
resonance

What, exactly, is Q, & what can I determine about this from the frequency response?

quality factor $Q = \frac{1}{2\zeta}$

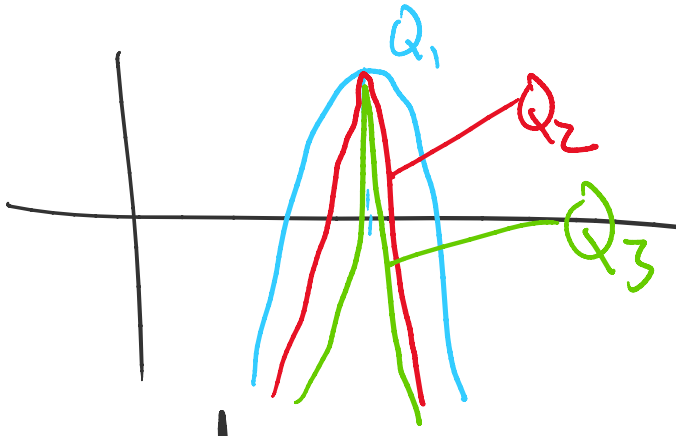
$Q = \frac{F_c}{\Delta f_{3dB}}$ Recall:





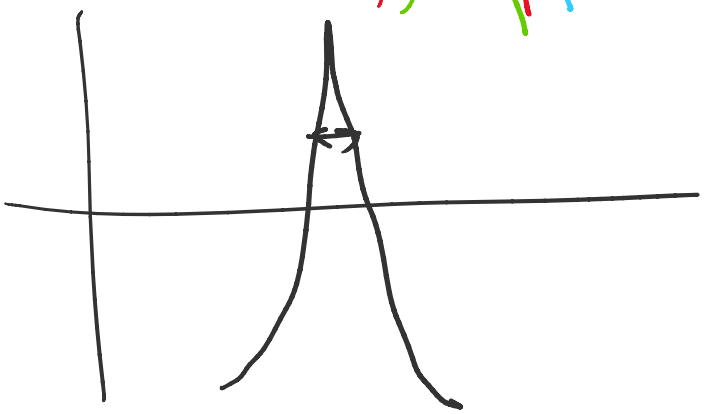
$$\left|\frac{1}{1+j\omega/\omega_p}\right| \simeq \frac{1}{|1+j|} = \frac{1}{\sqrt{1^2+1^2}} = \frac{1}{\sqrt{2}}$$

$$20\log_{10}\left(1/\sqrt{2}\right) \simeq -3\,dB$$



$Q_3 > Q_2 > Q_1$

selective



$$H(j\omega) = \frac{V_{out}(j\omega)}{V_{in}(j\omega)}$$

$1 \angle 0^\circ$