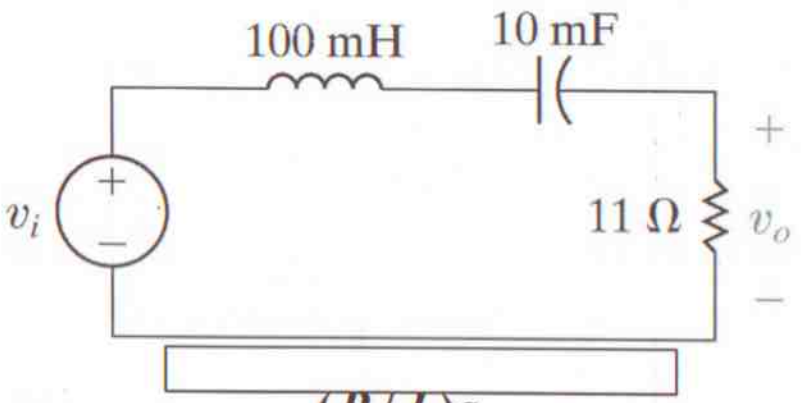
REEL SIFIR VE KUTUPLU
TRANSFER FOKSİYONUNUN (SERİ RLC)
GENLİK BODE DİYAGRAMINA ÖRNEK



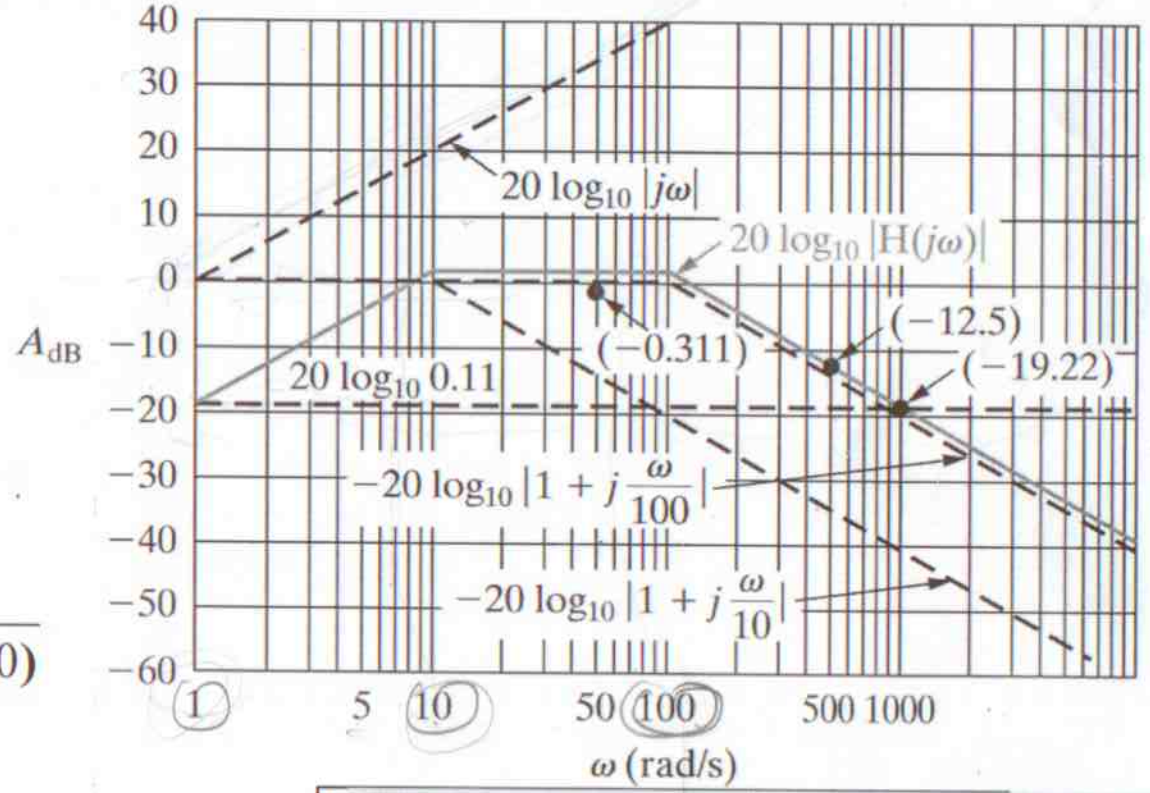
$$H(s) = \frac{(R/L)s}{s^2 + (R/L)s + (1/LC)}$$

$$H(s) = \frac{110s}{s^2 + 110s + 1000} = \frac{110s}{(s+10)(s+100)}$$

$$H(j\omega) = \frac{0.11 j\omega}{[1 + j(\omega/10)][1 + j(\omega/100)]}$$

$$A_{dB} = 20\log_{10}|H(j\omega)|$$

$$= 20\log_{10} 0.11 + 20\log_{10}|j\omega| - 20\log_{10}|1 + j(\omega/10)| - 20\log_{10}|1 + j(\omega/100)|$$



Kural: ω' ya göre kırılma noktalarına göre bölgelere ayırıp o bölgedeki terimler toplanır.
İki uç nokta için toplama yeter.

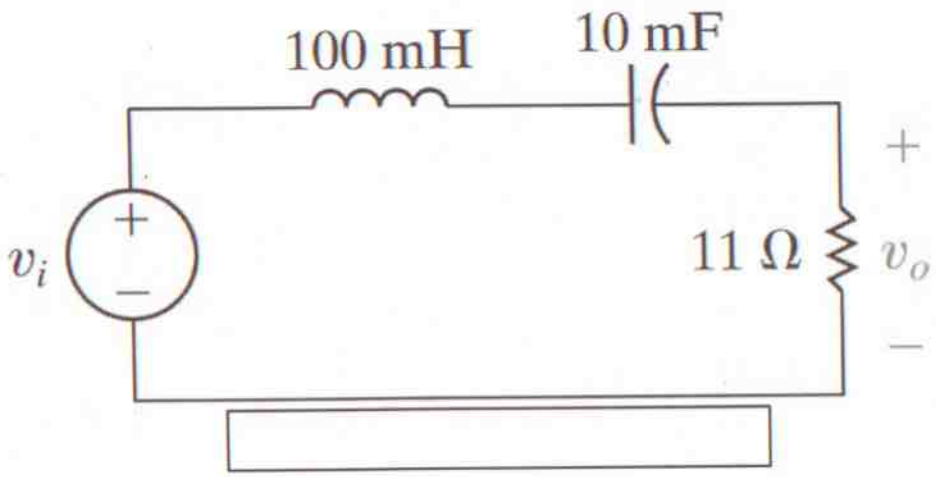
+ $20\log_{10}0.11$ (=19.22dB) $+20\log_{10}\omega$ — 1 r/s $\leq \omega <$ 10 r/s için

+ $20\log_{10}0.11$ (=19.22dB) $+20\log_{10}\omega$ - $20\log_{10}(\omega/p_1=10)$ $[20\log_{10}|1+(j\omega/z_1)|]$ toplamı=0 dB — 10 r/s $\leq \omega <$ 100 r/s için

+ $20\log_{10}0.11$ (=19.22dB) $+20\log_{10}\omega$ - $20\log_{10}(\omega/p_1=10)$ $[20\log_{10}|1+(j\omega/z_1)|]$ toplamı + $20\log_{10}(\omega/p_{2=100})$ $[20\log_{10}|1+(j\omega/p_1)|]$ = — 100 r/s $\leq \omega <$ ∞ r/s için

= 0dB + $20\log_{10}(\omega/p_1=100)$

TRANSFER FOKSİYONUNUN (SERİ RLC) FAZ BODE DİYAGRAMI- YAKLAŞIK

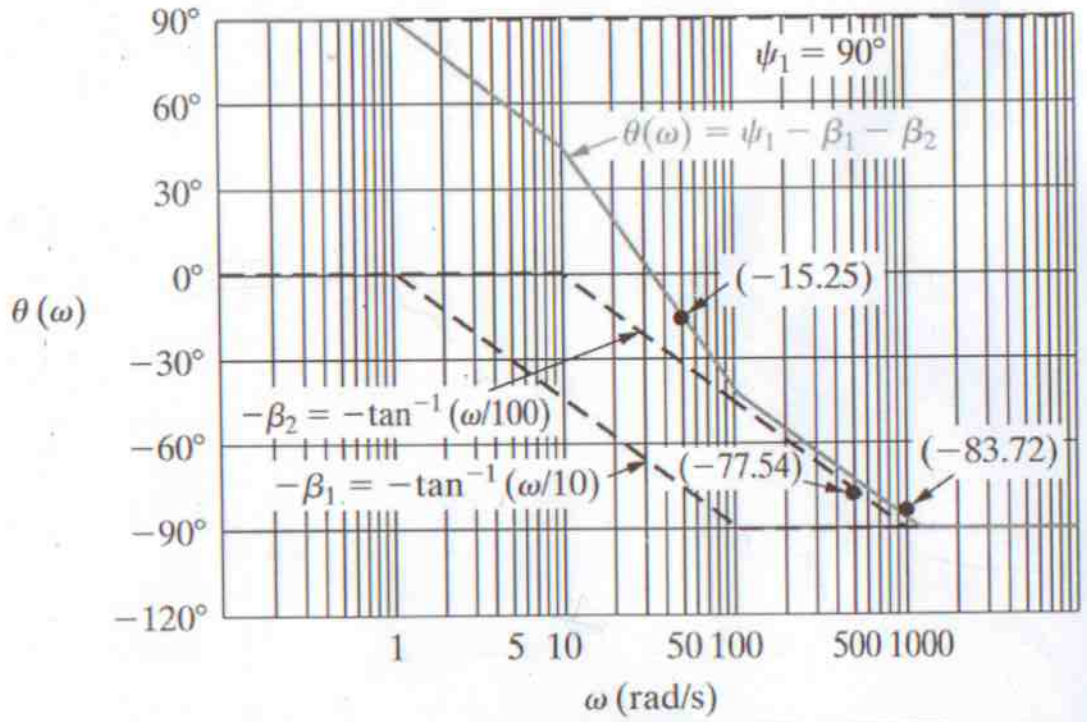


$$H(s) = \frac{(R/L)s}{s^2 + (R/L)s + (1/LC)}$$

$$H(s) = \frac{110s}{s^2 + 110s + 1000} = \frac{110s}{(s+10)(s+100)}$$

$$H(j\omega) = \frac{0.11j\omega}{[1 + j(\omega/10)][1 + j(\omega/100)]}$$

$$\theta(\omega) = \psi_1 - \beta_1 - \beta_2 = 90^0 - \arctan(\omega/10) - \arctan(\omega/100)$$



Kural: kutup ve sıfırların (1/10) u köşeler oluyor ω'yı Köşelere göre bölgelere ayırıp Terimler toplanıyor.