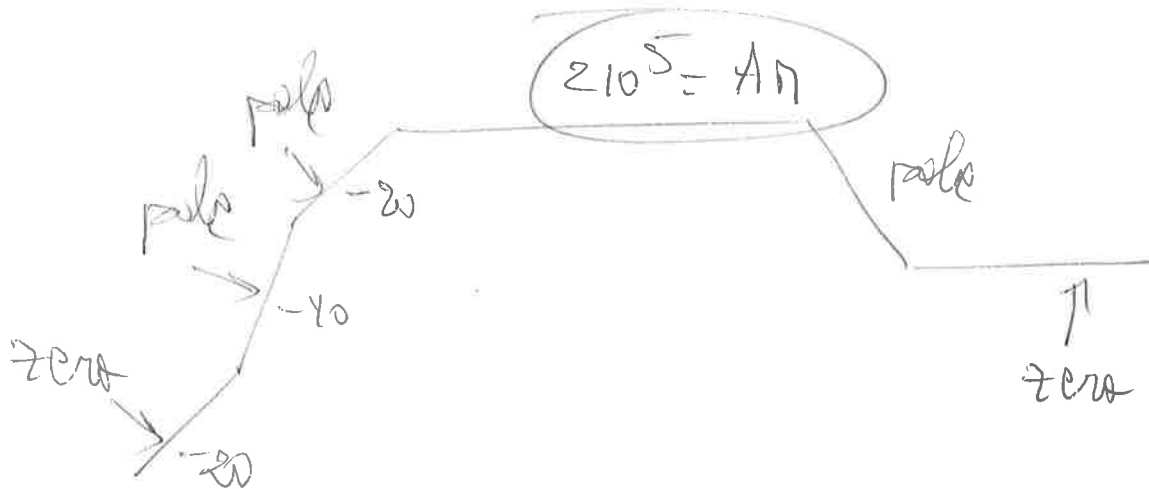


$$A(s) = \frac{500s(s+10)(s+10^4)}{(s+25)(s+50)(s+2.5 \cdot 10^4)}$$

$$= \frac{500}{\left(1 + \frac{25}{s}\right)} \frac{\left(1 + \frac{10}{s}\right)}{\left(1 + \frac{50}{s}\right)} \frac{10^4 \left(1 + \frac{s}{10^4}\right)}{2.5 \cdot 10^4 \left[1 + \frac{s}{2.5 \cdot 10^4}\right]}$$

$$= \frac{5 \cdot 10^9}{2.5 \cdot 10^4} \frac{\left(1 + \frac{10}{s}\right)}{\left(1 + \frac{25}{s}\right)\left(1 + \frac{50}{s}\right)} \frac{\left(1 + \frac{s}{10^4}\right)}{\left(1 + \frac{s}{2.5 \cdot 10^4}\right)}$$

$$= 2 \cdot 10^5 \frac{\left(1 + \frac{10}{s}\right)}{\left(1 + \frac{25}{s}\right)\left(1 + \frac{50}{s}\right)} \frac{\left(1 + \frac{s}{10^4}\right)}{\left(1 + \frac{s}{2.5 \cdot 10^4}\right)}$$



$$A(\omega) = \frac{A_{01} F_L(\omega) F_H(\omega)}{\omega^4 (\omega^2 + 10^4)}$$

$$= \frac{10^4}{\left(1 + \frac{10^2}{\omega}\right)} \left(\frac{1}{\omega^2 + 10^4}\right)$$

$$= \frac{\omega^4}{\left(1 + \frac{\omega^2}{\omega^4}\right)} \frac{1}{\omega^4} \frac{1}{\left(1 + \frac{\omega^2}{\omega^4}\right)} = 10^3 F_L(\omega) F_H(\omega)$$


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$$A(\omega) = \frac{\omega^4 (\omega + 10) (\omega + 10^6)}{(\omega + 100) (\omega + \omega^4)}$$

$$= \frac{\omega^4 \cancel{\left(1 + \frac{\omega}{10}\right)} \left(1 + \frac{\omega}{10^6}\right) 10^6 \cdot 2}{\cancel{\left(1 + \frac{100}{\omega}\right)} \left(1 + \frac{\omega}{\omega^4}\right) 10^4}$$

$$\cancel{\left(1 + \frac{100}{\omega}\right)} \left(1 + \frac{\omega}{\omega^4}\right) \cancel{10^4}$$

$$= 10^6 \frac{\left(1 + \frac{10}{\omega}\right)}{\left(1 + \frac{100}{\omega}\right)} \frac{\left(1 + \frac{\omega}{\omega^6}\right)}{\left(1 + \frac{\omega}{10^4}\right)}$$

$$= A_{01} F_L(\omega) F_H(\omega)$$

$$A(s) = \frac{10^6 s \left(1 + \frac{1}{s}\right)}{(s + 100)(s + 10^4)}$$

$$= \frac{10^6 \left(1 + \frac{1}{s}\right)}{\left(1 + \frac{100}{s}\right) 10^4 \left(1 + \frac{s}{10^4}\right)}$$

$$= \boxed{10^2} \times \boxed{\frac{\left(1 + \frac{1}{s}\right)}{\left(1 + \frac{100}{s}\right)}} \times \boxed{\frac{1}{\left(1 + \frac{s}{10^4}\right)}}$$

$= A_{\text{M}} \quad F_L(s) \quad F_H(s)$

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