

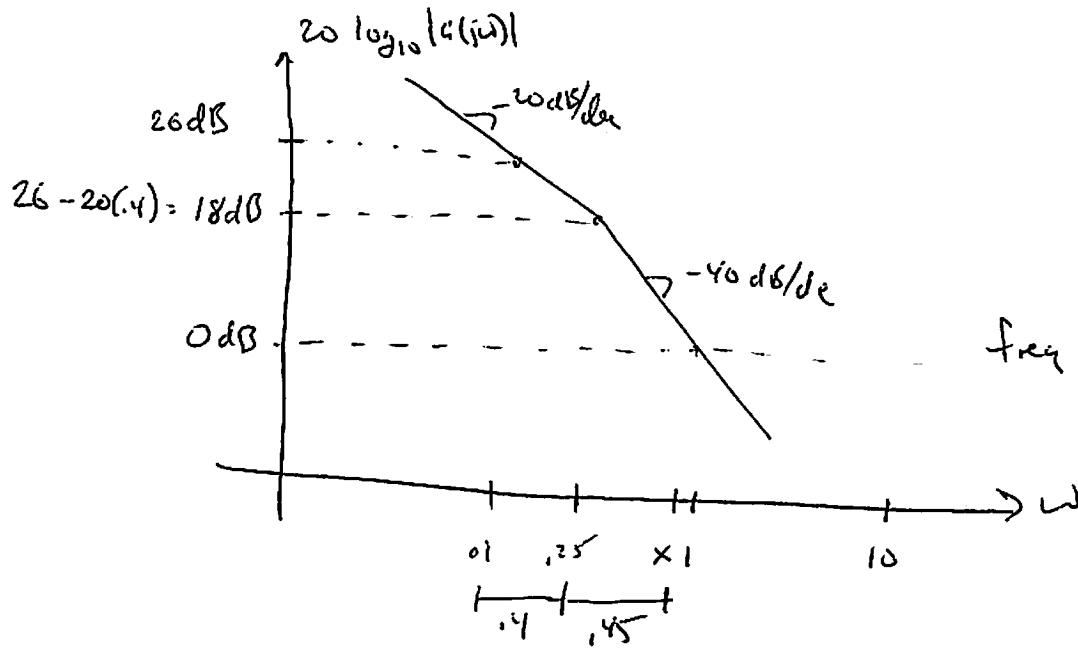
$$(a) G(s) = \frac{2}{4s^2 + s} = \frac{2}{s(4s+1)} = \frac{2}{s} \cdot \frac{1}{0.25s+1}$$

$$LFT: \frac{2}{s}$$

$$LFT \text{ mag @ } 0.1 \text{ rad/s} : \frac{2}{.1} = 20$$

freq	type	mag slope	phase slope
0.25	1st pole	-20 dB/dec	-45 dB/dec

$$20 \log_{10}(2) = 26 \text{ dB}$$



$$\text{freq at crossover: } \frac{18 \text{ dB}}{40 \text{ dB/dec}} = 0.45 \text{ dec}$$

x is .45 dec from 0.25 or .85 dec from .1

$$10^{.45} = 7.1$$

$$\text{then } x = 0.71 \text{ (or } 10^{-.15} = 0.71)$$

