for $\zeta_r = 1$ see want $\frac{2.2}{\omega_n} = 1 \Rightarrow \omega_n = 2.2$

choose $\omega_{co} = 2.2$ rad/s.

From Bode plot mag @ 2.2 rad/s is -27 dB. Thus

Choose $K = 10^{27/20} = \underline{22.4}$

with this K and ω_n, phase margin is 60°
(since phase @ 2.2 rad/s is -120°)

estimate $\zeta = .6$ and $\%OS = e^{-.6\pi/\sqrt{1-.6^2}} \times 100 = \underline{9.5\%}$