Control Systems

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Abstract—This manual is an introduction to control systems based on GATE problems.Links to sample Python codes are available in the text.

Download python codes using

svn co https://github.com/gadepall/school/trunk/
   control/codes

1 POLAR PLOT

1.1 Introduction

1.1. Sketch the direct polar plot for a unity feedback system with open loop transfer function

$$G(s) = \frac{1}{s(1 + s)^2} \qquad (1.1.1)$$

Solution: The polar plot is obtained by plotting (r, ϕ)

$$r = |H(\jmath\omega)||G(\jmath\omega)| \qquad (1.1.2)$$
$$\phi = \angle H(\jmath\omega)G(\jmath\omega), 0 < \omega < \infty \qquad (1.1.3)$$

The following code plots the polar plot in Fig. **??**

codes/ee18btech11002/polarplot.py

1.2. Sketch the inverse polar plot for (**??**)
    Solution: The above code plots the polar plot in Fig. **??** by plotting $\left(\frac{1}{r}r, -\phi\right)$
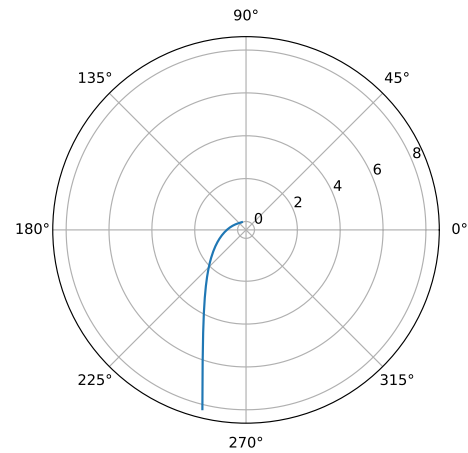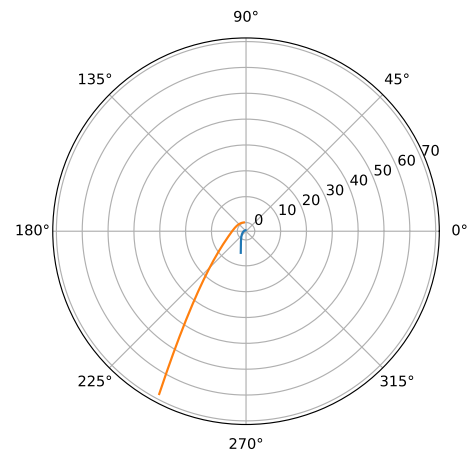
1.2 Example

Fig. 1.1: Polar Plot

Fig. 1.2: Inverse Polar Plot

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