1. Determine the closed-loop stability of the following open-loop transfer functions by using Nyquist stability criterion or Bode stability criterion (Logarithm frequency stability criterion).

① $G(s) = \dfrac{100}{s(0.2s+1)}$

② $G(s) = \dfrac{50}{(0.2s+1)(s+2)(s+0.5)}$

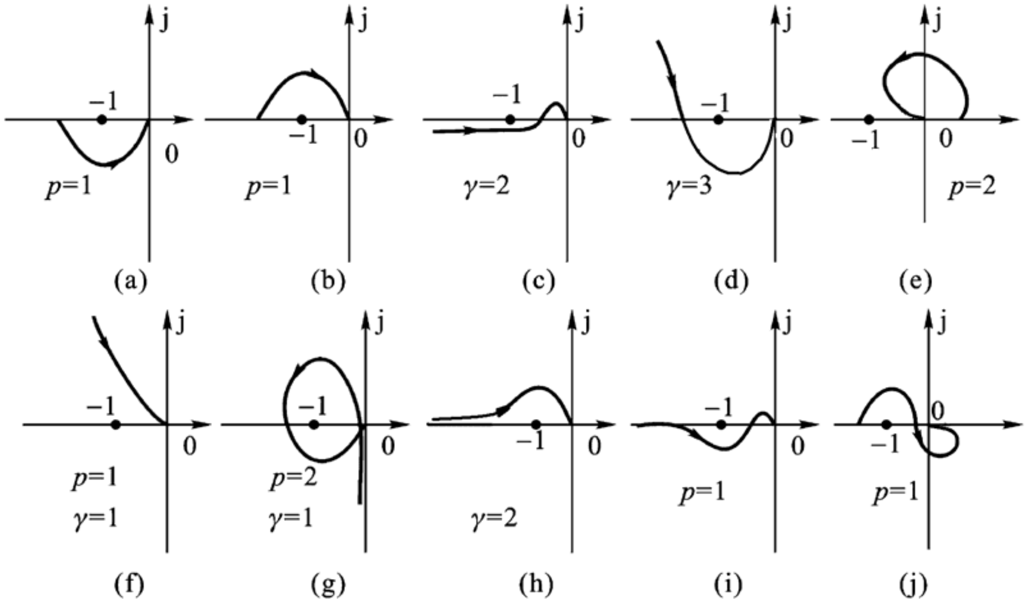
③ $G(s) = \dfrac{100}{s(0.8s+1)(0.25s+1)}$

④ $G(s) = \dfrac{10}{s(0.1s+1)(0.25s+1)}$

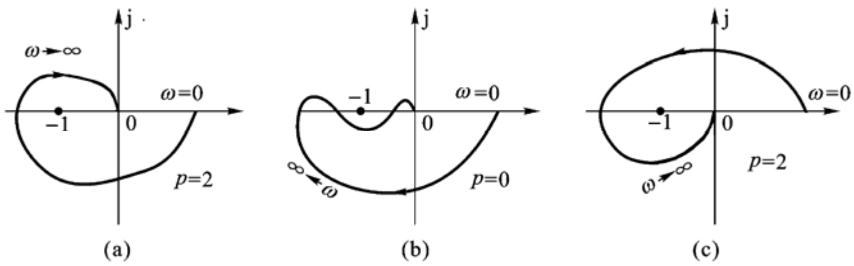
⑤ $G(s) = \dfrac{10}{s(0.2s+1)(s-1)}$

⑥ $G(s) = \dfrac{100(0.2s+1)}{s^2(0.02s+1)}$

2. The following figures show the Nyquist plots of some open loop transfer functions, where p is the number of the unstable poles of the transfer functions, and γ is the number of integral factors. For each figure, determine its stability by using Nyqiust stability criterion.



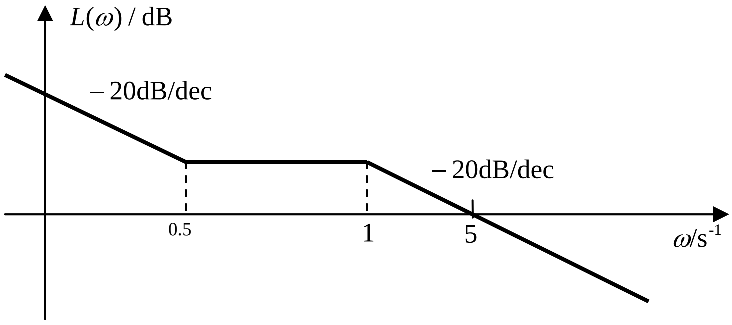
3. Niquist plots of three minimum phase open loop transfer functions are shown below. Determine the stability of the corresponding closed-loop system by using Naquist stability criterion.



4. The Bode asymptotic magnitude curve of the open-loop transfer function of a unity-feedback system is shown below. If it is known that a zero of the open-loop transfer function lies in the right half s-plane.

1. Determine the open-loop transfer function;

2. Determine the stability of the closed-loop system by using Bode stability criterion.



5. Bode diagram of minimum phase systems are shown below. Determine their transfer functions and draw the corresponding phase angle plots. Then, determine their stability.