additional problem 1: Consider a unity-feedback control system with the open-loop transfer function

\[ G(s) = \frac{K}{s(s^2 + s + 4)} \]

Determine the value of the gain \( K \) such that the phase margin is 50°. What is the gain margin with this gain \( K \)?

additional problem 2: Consider the system shown in Figure 8-125. Draw a Bode diagram of the open-loop transfer function, and determine the value of the gain \( K \) such that the phase margin is 50°. What is the gain margin of this system with this gain \( K \)?