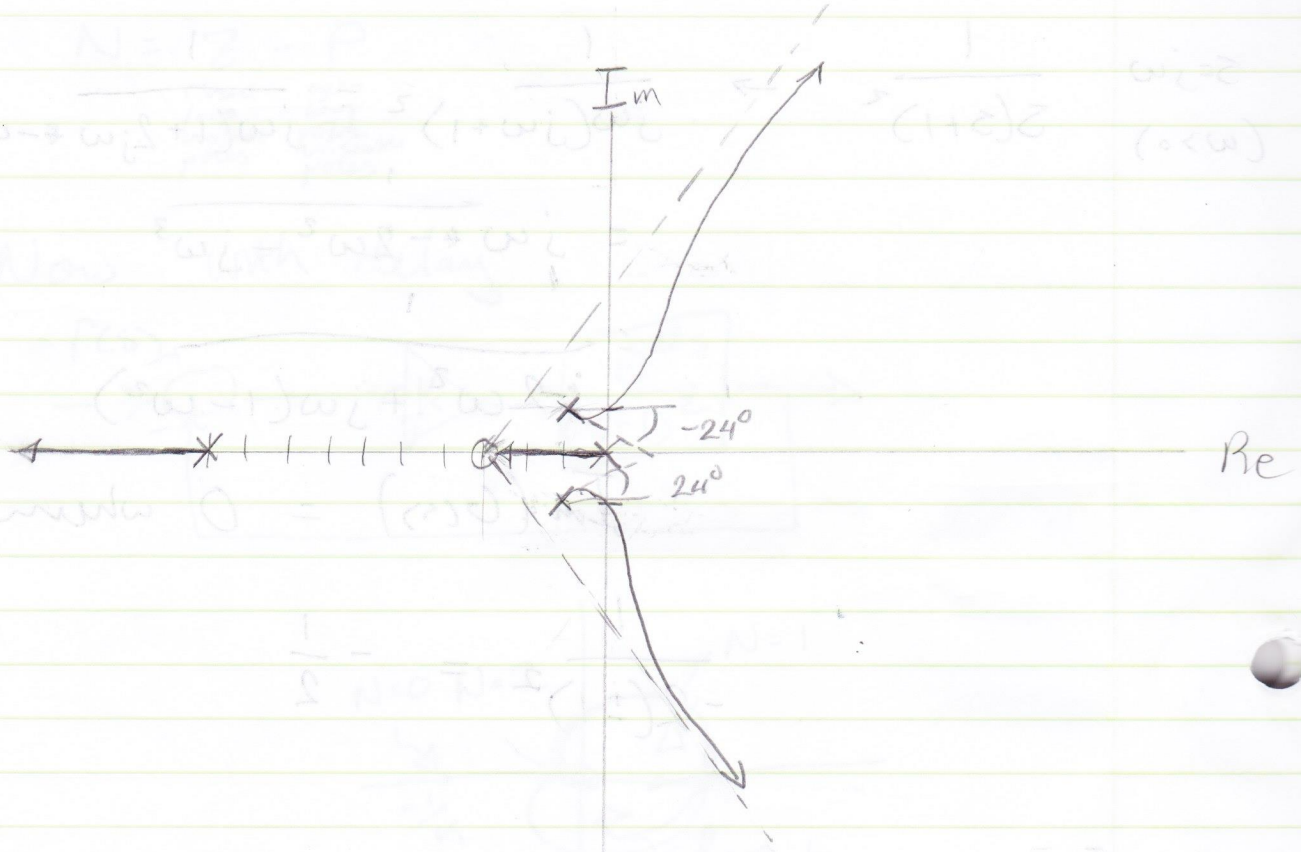


# Homework 4

5.7 a)

$$L(s) = \frac{s+3}{s(s+10)(s^2+2s+2)}$$



$$\sigma = \frac{(0 + 10 + 1 + j + 1 - j) - (-3)}{4 - 1} = \frac{-9}{3} = -3$$

$$\phi_l = \frac{180^\circ + 360^\circ(l-1)}{4-1} = 60^\circ + 120^\circ(l-1)$$

$$\phi_1 = 60^\circ \quad \phi_2 = 180^\circ \quad \phi_3 = 300^\circ$$

$$\phi_{\text{dep}} = (27^\circ) - (6^\circ + 90^\circ + 135^\circ) - 180^\circ = -24^\circ$$