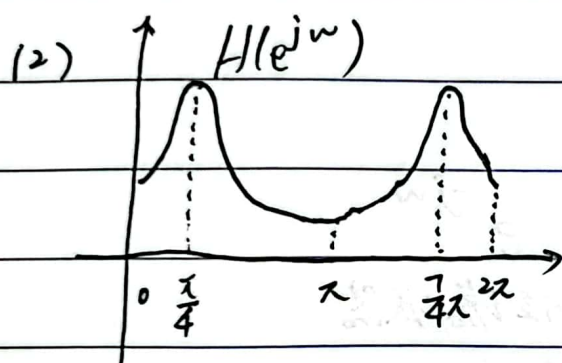
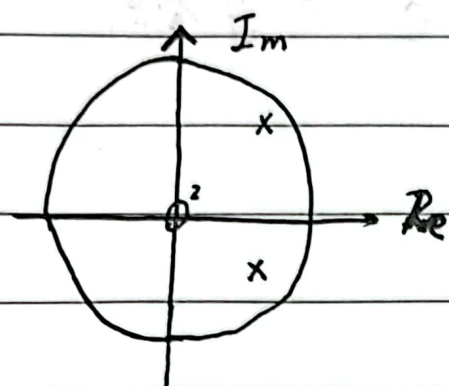


$$6.3. (1) H(z) = \frac{z^2}{(z-P_1)(z-P_2)} = \frac{1}{1-1.13z^{-1}+0.64z^{-2}}$$



$$(3) Y_1(z) = \frac{0.49-0.64z^{-1}}{1-1.13z^{-1}+0.64z^{-2}}$$

$$X(n) = u(n), \quad X(z) = \frac{1}{1-z^{-1}}$$

$$H(z) = \frac{1}{1-1.13z^{-1}+0.64z^{-2}}$$

$$Y(z) = H(z) \cdot X(z)$$

$$Y_2(n) = 1.9608 u(n) + (-0.48 - j0.63) \times 0.8^n e^{j\frac{\pi}{4}n} u(n) \\ + (-0.48 + j0.63) \times 0.8^n e^{-j\frac{\pi}{4}n} u(n)$$

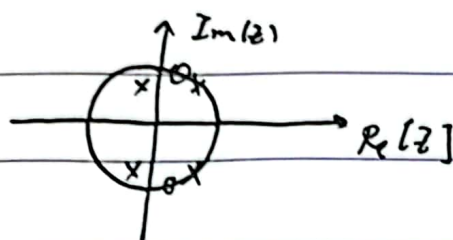
$$\Rightarrow Y(n) = Y_1(n) + Y_2(n)$$

$$= 1.96 u(n) - (0.24 + j0.3) \times 0.8^n e^{j\frac{\pi}{4}n} u(n) \\ - (0.235 - j0.3) 0.8^n e^{-j\frac{\pi}{4}n} u(n)$$



6.8. (1) $\omega = \frac{3}{5}\pi$ 有最大值, 单位圆内有极点.

$Z = e^{j\frac{3}{5}\pi}$ 有极点, $Z = e^{j\frac{2}{5}\pi}$ 有零点



(2) IIR

(3) 非对称, 非线性相位

(4) 不稳定

6.11. (a) $H(e^{j\omega}) = (1 + 4 \cos \omega) e^{-j\omega}$

广义线性相位滤波器

$$A = 1 + 4 \cos \omega, \quad \alpha = 1, \quad \beta = 0$$

不是严格线性相位滤波器

(b) 不是广义线性相位滤波器

(c) $H(e^{j\omega}) = (3 + 2 \cos \omega) e^{-j\omega}$

$$A = 3 + 2 \cos \omega, \quad \alpha = 1, \quad \beta = 0$$

是广义, 也是严格线性相位滤波器

(d) $H(e^{j\omega}) = 2 \cos \frac{\omega}{2} e^{-\frac{j}{2}\omega}$

$$A(e^{j\omega}) = 2 \cos \frac{\omega}{2}, \quad \alpha = \frac{1}{2}, \quad \beta = 0$$

是广义线性相位滤波器,

不是线性相位滤波器,

(e) $H(e^{j\omega}) = 2 \sin \omega e^{-j\omega + j\frac{\pi}{2}}$

$$A(e^{j\omega}) = 2 \sin \omega, \quad \alpha = 1, \quad \beta = \frac{\pi}{2}$$

是广义线性相位滤波器, 不是线性相位滤波器

