

2.2) Analyse d'un filtre numérique

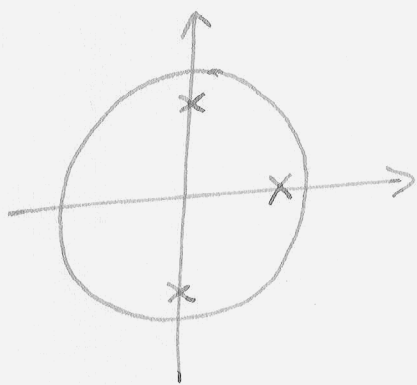
$$1) H_1: y(n) = x(n) + \beta y(n-1) \rightarrow H_1(z) = \frac{1}{1 - \beta z^{-1}}$$

$$H_2: y(n) = x(n) - \alpha^2 y(n-2) \rightarrow H_2(z) = \frac{1}{1 + \alpha^2 z^{-2}}$$

$$H: y(n) = x(n) + \beta y(n-1) - \alpha^2 y(n-2) + \alpha^2 \beta y(n-3) \\ \rightarrow H(z) = \frac{1}{1 - \beta z^{-1} + \alpha^2 z^{-2} - \alpha^2 \beta z^{-3}}$$

$$2) H_1(z)H_2(z) = \frac{1}{(1 - \beta z^{-1})(1 + \alpha^2 z^{-2})} = \frac{1}{1 - \beta z^{-1} + \alpha^2 z^{-2} - \alpha^2 \beta z^{-3}} \\ = H(z)$$

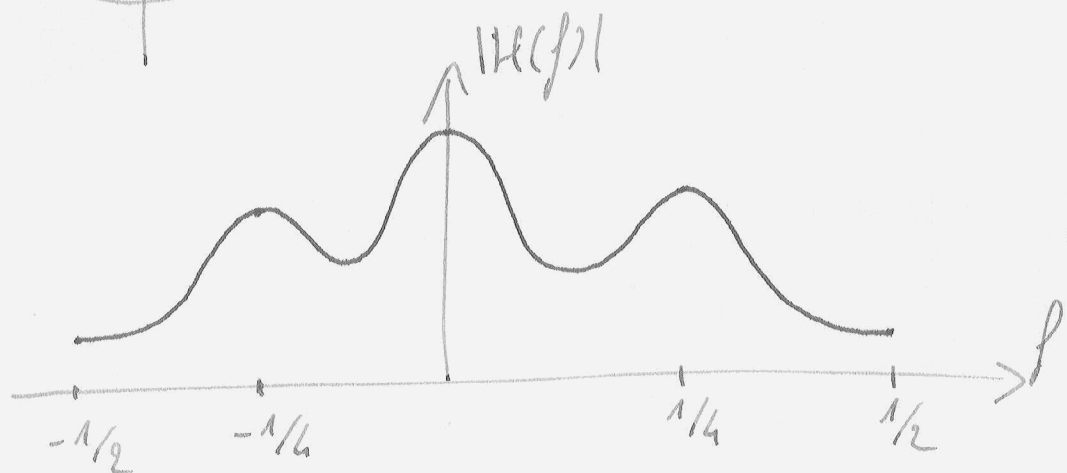
3)



pôles de H

$$= \{ \beta; j\alpha; -j\alpha \}$$

4)



2.1) Multiplexage de données numériques : voir CC nov. 06