

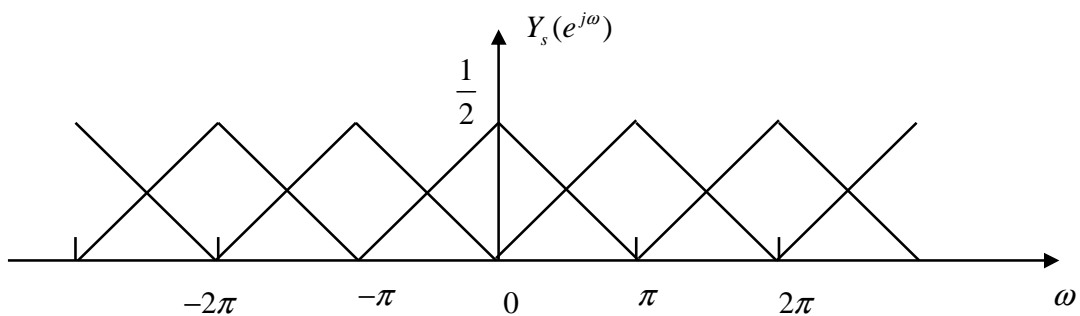


IN2061 Einführung in die Digitale Signalverarbeitung

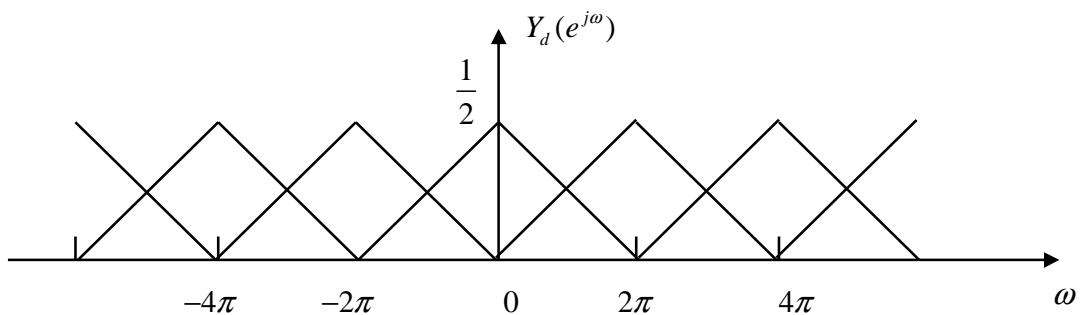
Key to Exercise 5

(a)
$$y_s[n] = \frac{1}{2}(1 + e^{j\pi n})x[n]$$

$$Y_s(e^{j\omega}) = \frac{1}{2}[X(e^{j\omega}) + X(e^{j(\pi+\omega)})]$$



(b)
$$Y_d(e^{j\omega}) = \frac{1}{2}[X(e^{j\omega/2}) + X(e^{j(\pi+\omega/2)})] = Y_s(e^{j\omega/2})$$



(c)
$$Y_e(e^{j\omega}) = X(e^{j2\omega})$$

