Note that page numbering is turned on in this template.

General results for ABC

$$X''(z) = X'(\omega)/T_1 = \sum_{n=-N}^{N} y_n e^{-i\omega n T_1} = [A + B e^{-i\omega T_1} + C e^{-i2\omega T_1}] \sum_{m=-N/3}^{N/3} e^{-i\omega(3m)T_1}.$$

$$\sum_{m=-N/3}^{N/3} e^{-i\omega(2m)T_1} = 2\pi\,\delta_5(3\omega T_1, N/3)$$

$$X''(z) = [A + B e^{-i\omega T_1} + C e^{-i2\omega T_1}]\, 2\pi\delta_5(3\omega T_1, N/3) \quad . \qquad (34.16)$$

$$X''(z) = [A + B e^{-i\omega T_1} + C e^{-i2\omega T_1}]\; 2\pi \sum_{m=-\infty}^{\infty} \delta(3\omega T_1 - 2\pi m)$$

$$= (1/3)\,[A + B e^{-i\omega T_1} + C e^{-i2\omega T_1}]\,\omega_1 \sum_{m=-\infty}^{\infty} \delta(\omega - m\omega_1/3)$$

$$X(\omega) = X_{pulse}(\omega) = (1/3)\,[A + B e^{-i\omega T_1} + C e^{-i2\omega T_1}]\,\omega_1 \sum_{m=-\infty}^{\infty} \delta(\omega - m\omega_1/3)$$

$$|X''(z)|^2 = |A + B e^{-i\omega T_1} + C e^{-i2\omega T_1}|^2\, [2\pi\,\delta_5(2\omega T_1, N/2)]^2$$

$$\delta_6(k,N/3) \equiv \frac{1}{2\pi}\,\frac{[2\pi\delta_5(k,N/3)]^2}{(2(N/3)+1)}$$

$$\frac{|X''(z)|^2}{2\pi(2(N/3)+1)} = |A + B e^{-i\omega T_1} + C e^{-i2\omega T_1}|^2\,\frac{1}{2\pi}\,\frac{[2\pi\delta_5(k,N/3)]^2}{(2(N/3)+1)}$$

$$= |A + B e^{-i\omega T_1} + C e^{-i2\omega T_1}|^2 \quad \delta_6(k,N/3)$$

$$\frac{|X''(z)|^2}{2\pi(2(N/3))} = 3\,\frac{|X''(z)|^2}{2\pi(2(N))} = 3\,\frac{|X''(z)|^2}{2\pi(2N+1)} = |A + B e^{-i\omega T_1} + C e^{-i2\omega T_1}|^2 \quad \delta_6(k,N/3)$$

$$\frac{|X(\omega)|^2}{2\pi(2N+1)} = (1/3)\,|A + B e^{-i\omega T_1} + C e^{-i2\omega T_1}|^2 \quad \delta_6(3\omega T_1, N/3)$$

$$\mathcal{P}(\omega) = |X_{pulse}(\omega)|^2\,(1/T_1)(1/3)\,|A + Be^{-i\omega T_1} + C e^{-i2\omega T_1}|^2 \quad \delta_6(3\omega T_1, N/3)$$

$$\mathcal{P}(\omega) = \mathcal{P}_{\mathbf{pulse}}(\omega)\,(1/3)\,|A + Be^{-i\omega T_1} + C\,e^{-i2\omega T_1}|^2 \;\; 2\pi\delta_6(3\omega T_1, N/3)$$

$$\mathcal{P}(\omega) = \mathcal{P}_{\mathbf{pulse}}(\omega)\,(1/3)\,|A + Be^{-i\omega T_1} + C\,e^{-i2\omega T_1}|^2 \sum_{m=-\infty}^{\infty} 2\pi\,\delta(3\omega T_1 - 2\pi m)$$

$$\mathcal{P}(\omega) = \mathcal{P}_{\mathbf{pulse}}(\omega)\,(1/3)^2\,|A + Be^{-i\omega T_1} + C\,e^{-i2\omega T_1}|^2 \sum_{m=-\infty}^{\infty} 2\pi\,\delta\,\delta(\omega - m\omega_1/3)$$