

Fórmules utiles

Integrals

$$\begin{aligned}\int P(t)e^{-jnt}dt &= \frac{e^{-jnt}}{n} \left[\left(\frac{P'(t)}{n} - \frac{P'''(t)}{n^3} + \dots \right) + j \left(P(t) - \frac{P''(t)}{n^2} + \dots \right) \right] \\ \int P(t)\sin(nt)dt &= \frac{\sin(nt)}{n} \left(\frac{P'(t)}{n} - \frac{P'''(t)}{n^3} + \dots \right) + \frac{\cos(nt)}{n} \left(-P(t) + \frac{P''(t)}{n^2} + \dots \right) \\ \int P(t)\cos(nt)dt &= \frac{\sin(nt)}{n} \left(P(t) - \frac{P''(t)}{n^2} + \dots \right) + \frac{\cos(nt)}{n} \left(\frac{P'(t)}{n} - \frac{P'''(t)}{n^3} + \dots \right)\end{aligned}$$

Relations trigonométriques

$$\begin{aligned}\sin(x)\sin(y) &= \frac{1}{2}(\cos(x-y) - \cos(x+y)) \\ \cos(x)\cos(y) &= \frac{1}{2}(\cos(x-y) + \cos(x+y)) \\ \sin(x)\cos(y) &= \frac{1}{2}(\sin(x-y) + \sin(x+y))\end{aligned}$$

Parseval (SF Trigonometriques)

$$\frac{1}{T} \int_0^T f(t)^2 dt = \frac{a_0^2}{4} + \frac{1}{2} \sum_{n \geq 1} (a_n^2 + b_n^2)$$

Parseval (SF Complexes)

$$\frac{1}{T} \int_0^T f(t)^2 dt = \sum_{n=-\infty}^{\infty} |c_n|^2$$
