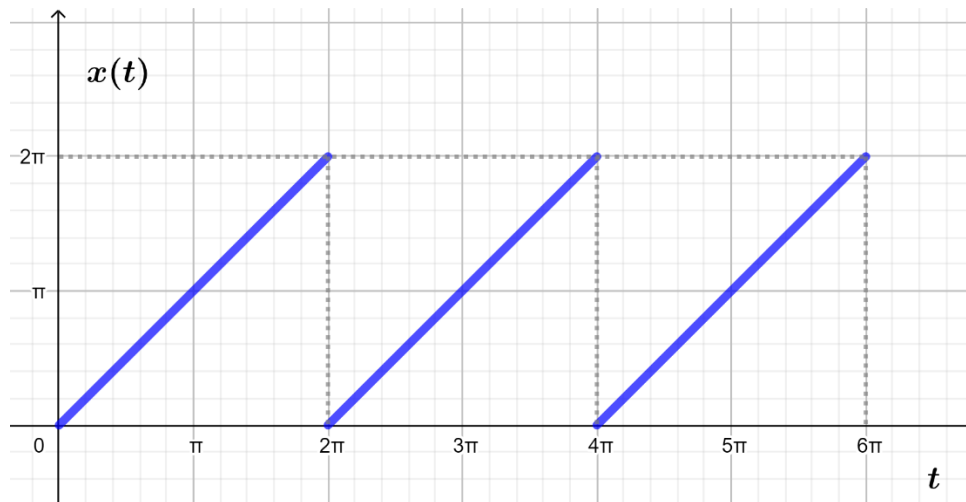


Aplique el teorema de Parseval a la señal periódica $x(t)$



$$x(t) = \pi - \sum_{k=1}^{\infty} \frac{2}{k} \text{sen}(kt)$$

$$C_k = \frac{j}{k}$$

$$P = \frac{1}{T} \int_{\langle T \rangle} |x(t)|^2 dt = \sum_{k=-\infty}^{\infty} |C_k|^2 = C_0^2 + \frac{1}{2} \sum_{k=1}^{\infty} 4|C_k|^2$$

$$P = \frac{1}{T} \int_{\langle T \rangle} |x(t)|^2 dt = \frac{1}{2\pi} \int_0^{2\pi} t^2 dt$$

$$P = \frac{1}{2\pi} \left[\frac{t^3}{3} \right]_0^{2\pi} = \frac{1}{2\pi} \frac{8\pi^3}{3} = \frac{4\pi^2}{3}$$

$$P = C_0^2 + \frac{1}{2} \sum_{k=1}^{\infty} 4|C_k|^2 = \pi^2 + \frac{1}{2} \sum_{k=1}^{\infty} 4 \left(\frac{1}{k} \right)^2 = \pi^2 + \frac{4}{2} \sum_{k=1}^{\infty} \frac{1}{k^2}$$

$$\frac{4\pi^2}{3} = \pi^2 + 2 \sum_{k=1}^{\infty} \frac{1}{k^2}$$