

# Transformada Fourier de Tiempo Discreto

A decorative graphic consisting of multiple parallel, wavy lines of small blue dots. The dots are arranged in a pattern that resembles a sine wave or a series of overlapping waveforms, creating a sense of motion and depth. The background is a solid, deep blue color.

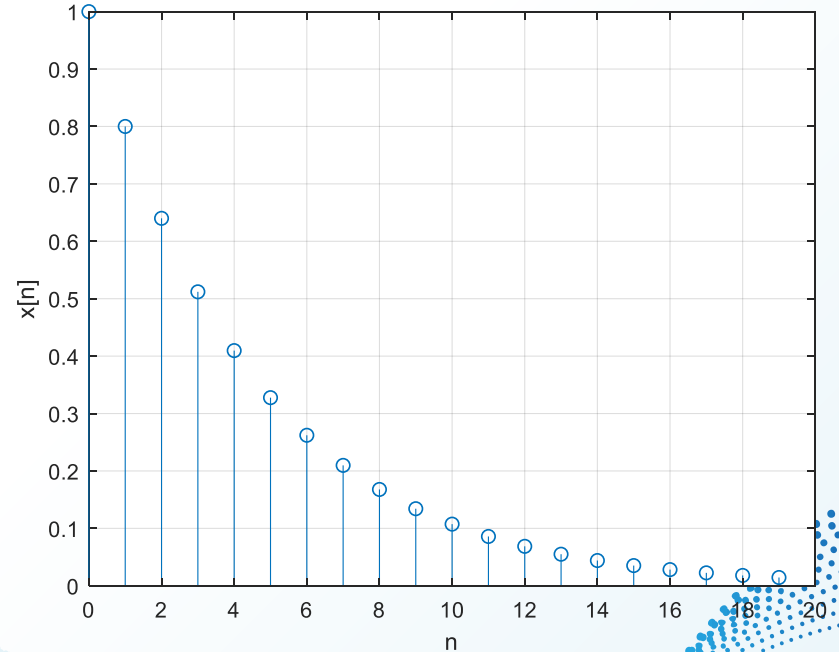
# Ejemplo

- Hallar la TF de la señal:

$$x[n] = (0,8)^n u[n]$$

$$X(\Omega) = \sum_{n=-\infty}^{\infty} x[n] e^{-j\omega n}$$

$$X(\Omega) = \sum_{n=-\infty}^{-1} x[n] e^{-j\omega n} + \sum_{n=0}^{\infty} x[n] e^{-j\omega n}$$



$$X(\Omega) = \sum_{n=0}^{\infty} 0,8^n e^{-j\omega n} = \sum_{n=0}^{\infty} (0,8 \cdot e^{-j\omega n})^n =$$

$$X(\Omega) = (0,8 \cdot e^{-j\omega n})^0 + (0,8 \cdot e^{-j\omega n})^1 + (0,8 \cdot e^{-j\omega n})^2 + \dots$$

$$X(\Omega) = \frac{1}{1 - 0,8 \cdot e^{-j\omega n}}$$

