

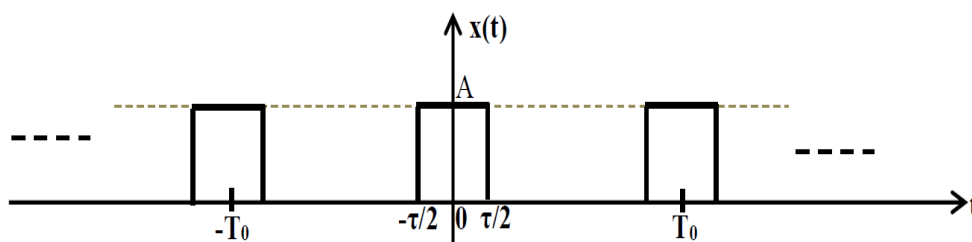


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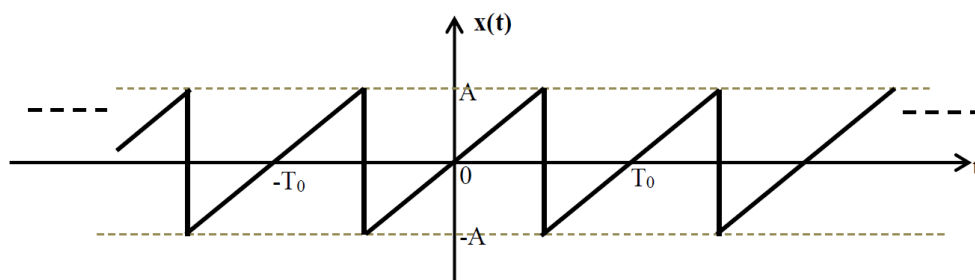
### Fourier Series

1. Compute the Exponential Fourier Series components for the signals and plot their magnitude and phase response.

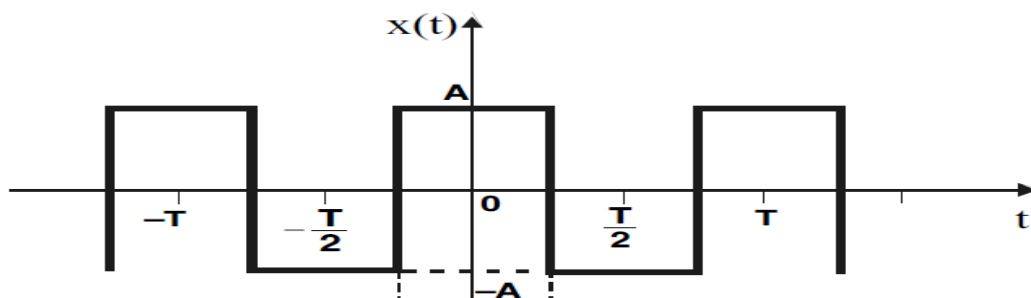
a)



b)



c)



2. A periodic signal has the FS representation,  $x(t) \xleftrightarrow{\omega_0=\pi} C_n = -n \cdot 2^{-|n|}$ . The fundamental frequency is  $\pi$ . Find the FS representation,  $d_n$  and  $\omega'_0$  without finding  $x(t)$ :

- a)  $y(t) = x(3t)$       b)  $y(t) = \frac{d}{dt}x(t)$       c)  $y(t) = x(t - 1)$   
d)  $y(t) = \cos(4\pi t)x(t)$       e)  $y(t) = x(t) + x(t + 1)$

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