

CG2023 ASSIGNMENT 2 (Fourier Series and Spectrum of a Signal)

1. Sketch the magnitude and phase spectra of

(a) $x(t) = 8\sin\left(12\pi t + \frac{\pi}{2}\right)$

(b) $y(t) = 4\cos\left(12\pi t + \frac{\pi}{16}\right)$

(c) $z(t) = 2.5 \times \exp\left(-j\left(6\pi t + \frac{\pi}{6}\right)\right)$

2. Determine the magnitude and phase spectra of the following

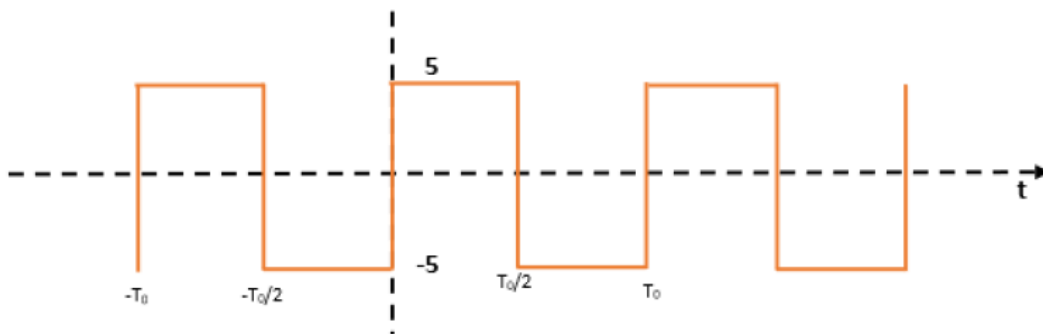
(a) $x(t) = \sin^2 t$

(a) $y(t) = \sin 9t + \cos 3t$

(c) $z(t) = (4 + 2j)e^{-j6t} + 3je^{-j9t} + 8 - 3je^{j9t} + 6je^{j3t} - 6je^{-j3t}$

3. Determine the exponential Fourier Series of the following waveforms

(a) $x(t) \rightarrow$



(b) $y(t) \rightarrow$

