

PROBLEM:

- (a) Let $w(t) = 3 \cos(200\pi t + 3\pi/4) + 2 \cos(200\pi t - \pi/4) = A \cos(\omega_0 t + \phi)$. Determine A , ω_0 , and ϕ .

$A =$

$\omega_0 =$

$\phi =$

- (b) A periodic signal $x(t)$ is given by

$$x(t) = 5 + 4 \cos(100\pi t + \theta) + 2 \cos(150\pi t + \psi).$$

Determine the period T_0 of this signal.

$T_0 =$

- (c) If the Fourier series coefficients of the signal $x(t)$ in part (b) are $a_0 = 5$, $a_2 = 2e^{j\pi/4}$, $a_{-2} = 2e^{-j\pi/4}$, $a_3 = e^{-j\pi/2}$, and $a_{-3} = e^{j\pi/2}$, determine θ and ψ for the signal $x(t)$.

$\theta =$

$\psi =$