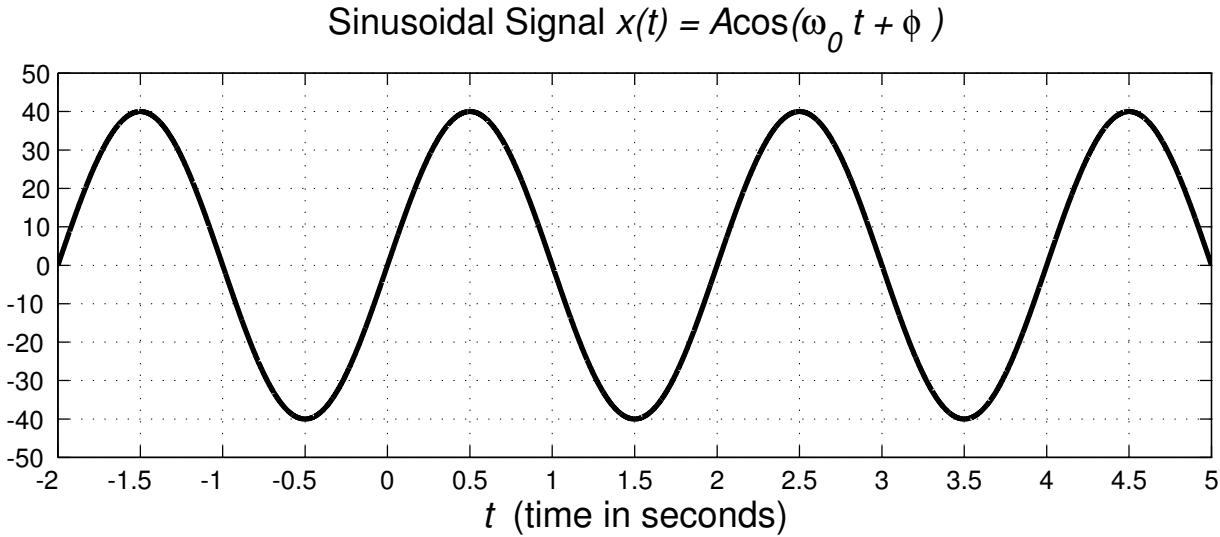
PROBLEM:



The above graph is a plot of a sinusoidal signal $x(t) = A\cos(\omega_0 t + \phi)$.

(a) Determine numerical values for A, ω_0 and ϕ with $-\pi < \phi \leq \pi$.

(b) By a suitable choice of delay t_d, we can shift $x(t)$ to obtain the new signal

$$y(t) = x(t - t_d) = A\cos(\omega_0 t + \pi/4) \tag{1}$$

There are an infinite number of values of t_d that satisfy Equation (1). Determine at least **two** different values of t_d that satisfy Equation (1), or give a general formula for all the possible values.