

Example 2-1: Figure ?? shows a plot of the signal

$$x(t) = 20 \cos(2\pi(40)t - 0.4\pi) \quad (2.1)$$

In terms of our definitions, the signal parameters are $A = 20$, $\omega_0 = 2\pi(40)$ rad/s, $f_0 = 40$ Hz, and $\varphi = -0.4\pi$ rad. The signal size depends on the amplitude parameter A ; its maximum and minimum values are $+20$ and -20 , respectively. In Fig. ?? the maxima occur at

$$t = \dots, -0.02, 0.005, 0.03, \dots$$

and the minima at

$$\dots, -0.0325, -0.0075, 0.0175, \dots$$

The time interval between successive maxima in Fig. ?? is 0.025 s, which is equal to $1/f_0$. To understand why the signal has these properties, we will need to do more analysis.

