

Concept Question 1-5: State the periodicity property.

A continuous-time signal $x(t)$ is periodic with period T if $x(t) = x(t + kT)$ for all times t and integers k . A sinusoid with nonzero frequency f is periodic with period $T = 1/f$.

A discrete-time signal $x[n]$ is periodic with period N if $x[n] = x[n + kN]$ for all times n and integers k . Unlike in continuous time, most discrete-time sinusoids are not periodic. See Fig. 1-12 for examples of continuous-time periodic signals.