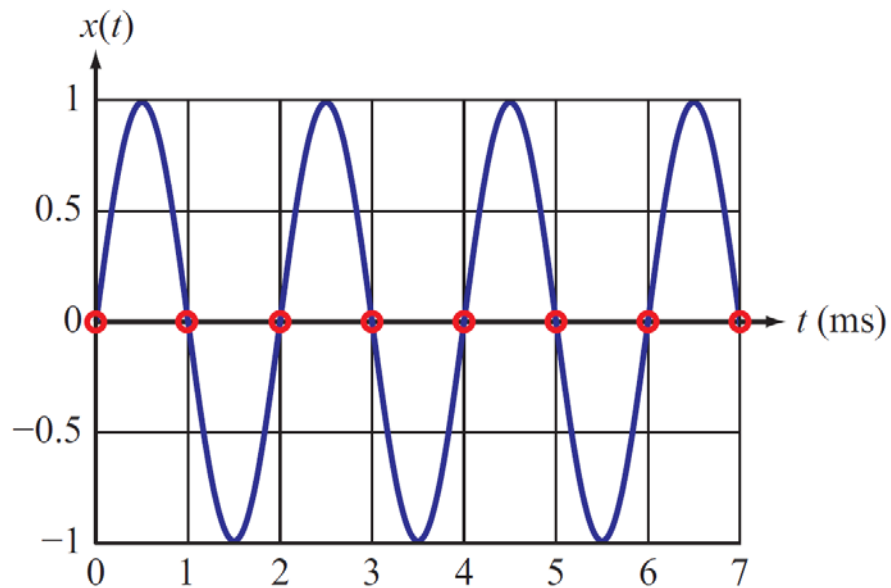


**Concept Question 6-19:** Does sampling a signal at exactly the Nyquist rate guarantee that it can be reconstructed from its discrete samples?

No. Fig. 6-71 shows that sampling a sine function at the Nyquist rate, which is the frequency of the sinusoid, results in a string of zeros!



**Figure 6-71:** A 500 Hz sinusoid,  $x(t) = \sin(1000\pi t)$ , sampled at the Nyquist rate of 1 kHz.