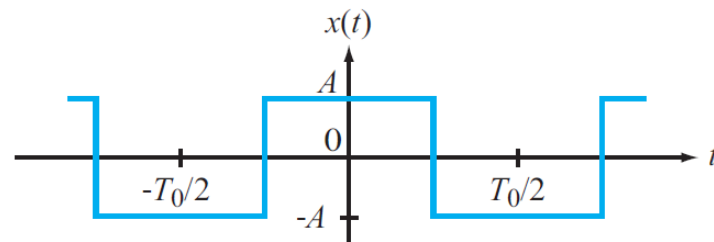
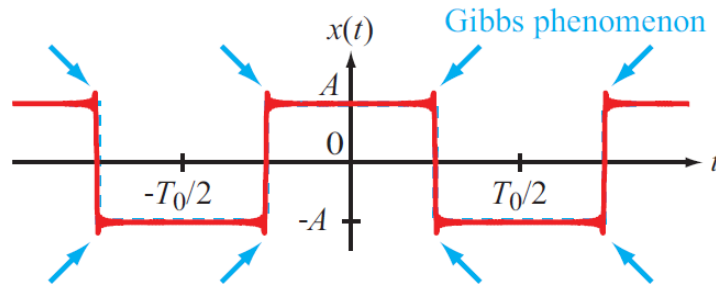


Concept Question 5-9: What is the Gibbs phenomenon?

If a periodic function has a discontinuity at time t (and therefore at times $t + kT$, where k is any integer and T is the period) the Fourier series expansion of the function exhibits ringing in the vicinity of the discontinuity at time t . See Fig. 5-19(b).



(a) Original waveform



(b) Fourier series with 100 terms

Figure 5-19: Square-wave waveform and its Fourier-series representation computed for $n_{\max} = 100$ terms.