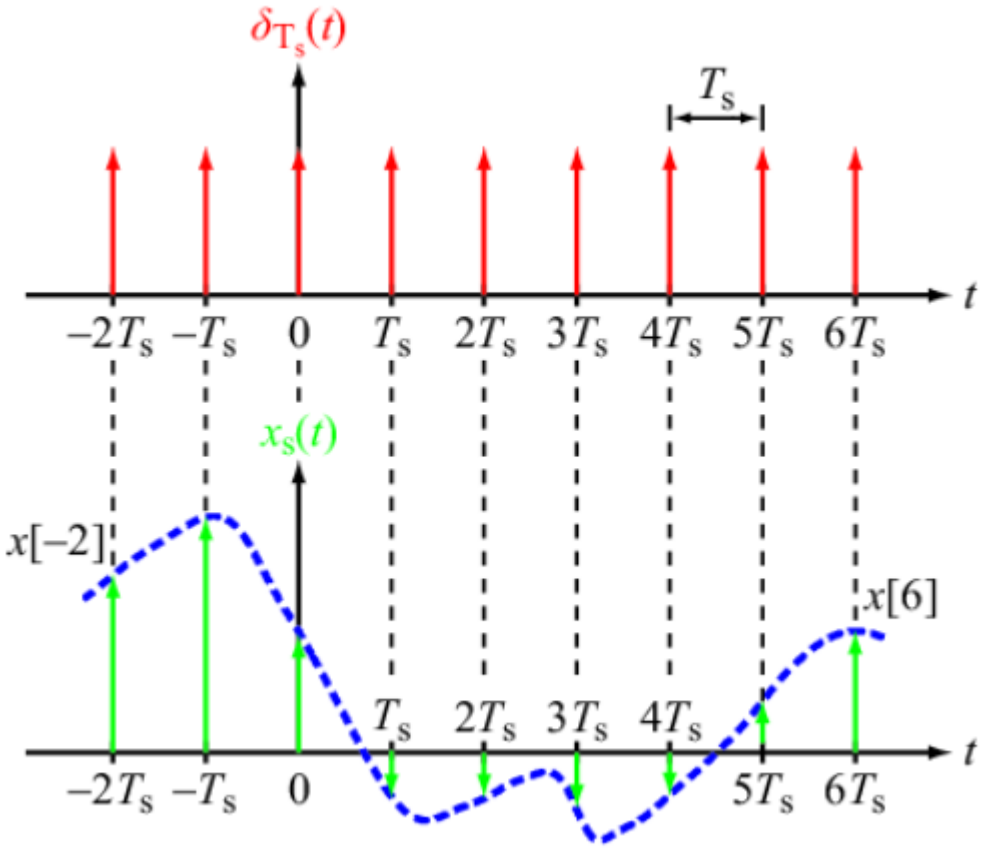
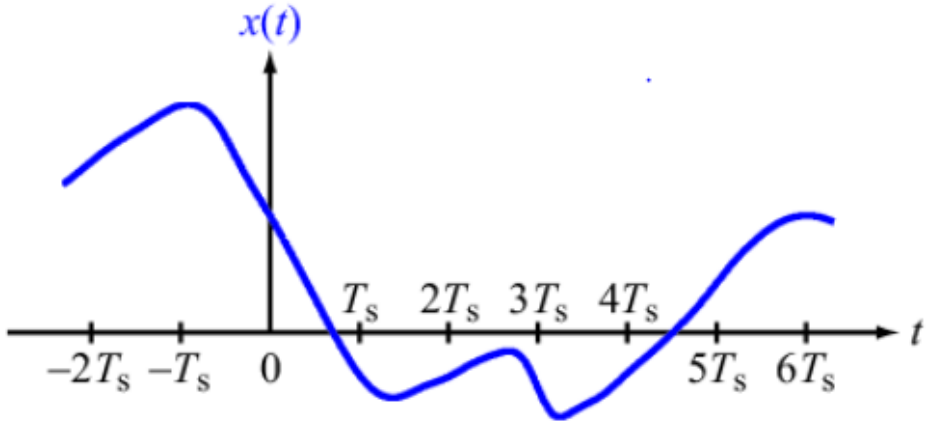
Comb function

$$\delta_{T_S}(t) = \sum_{k=-\infty}^{\infty} \delta(t - kT_S)$$





Sampled signal

$$x_S(t) = x(t)\delta_{T_S}(t)$$

$$x_S(t) = \sum_{k=-\infty}^{\infty} x(t)\delta(t - kT_S) = \sum_{k=-\infty}^{\infty} x(kT_S)\delta(t - kT_S)$$

T_S = Sample time

f_S = Sample rate (samples/sec)