

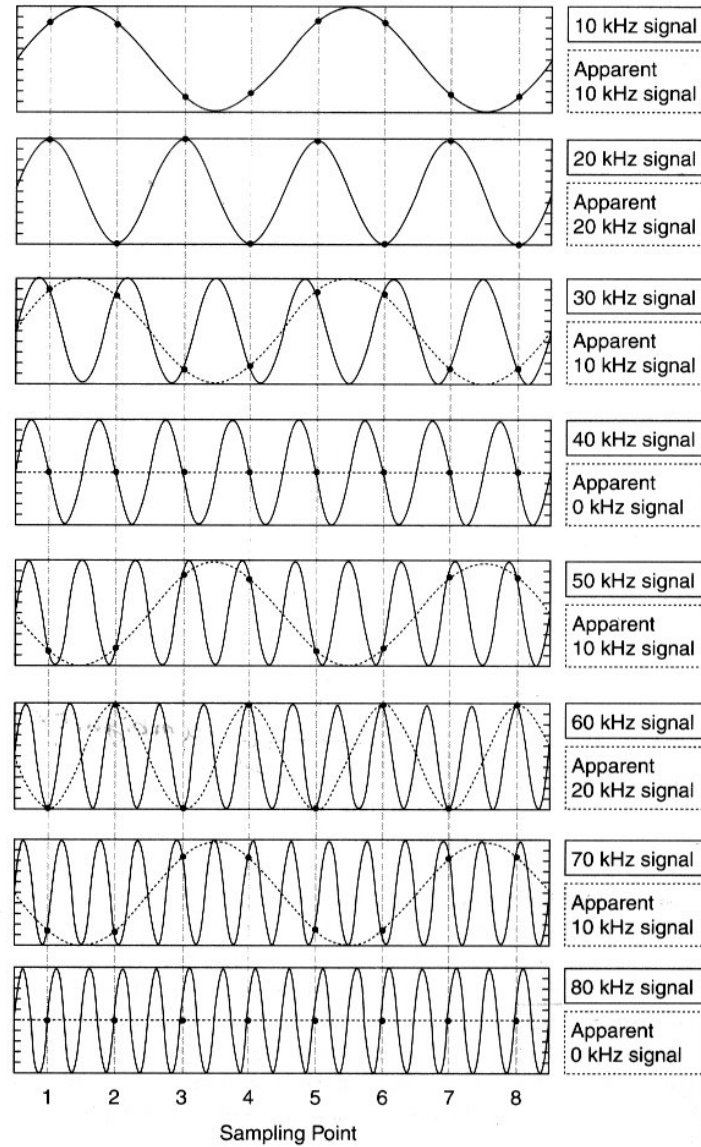
DSP HW 3 Aliasing and Reconstruction

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FIGURE 2.6

Aliasing in the time domain with 40 kHz sampling (adapted from Pohlmann, 1994).



【 “Fundamentals of Digital Signal Processing,” Joyce Van de Vegte , Prentice Hall, 2002. pp. 34 】

Q1: (1) Please verify the above results in frequency domain.

(2) In the accompanying CD, relevant Matlab functions for the above problem are [alias.m](#) and [image_freq.m](#). Please run the two functions and briefly describe about them and the running results.

Q2: Assume the **band-limited** signal $x[n]$ with $x[-1]=4$, $x[0]= 5$, $x[1]= 3$, $x[2]=1$, $x[3]= 2$, please write a Matlab program to verify the following **“Ideal Reconstruction”**.

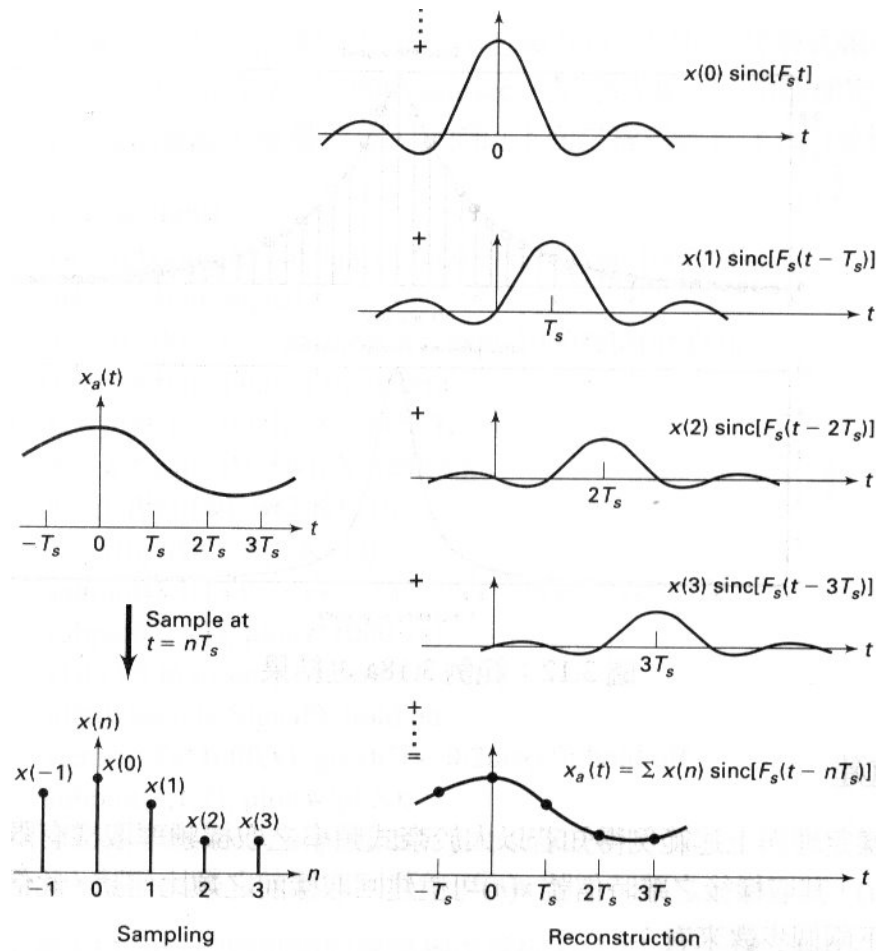


圖 3.14 有限頻寬信號之取樣與重建

【摘自“數位訊號處理—使用 Matlab”，余兆棠 陳順智 譯（Ingle and Proakis 原著），滄海圖書。 pp.68】

Hint: Plot the **sinc(x)** by Matlab

```
>> t = -10:0.1:10;
```

```
>> y = sinc(t);
```

```
>> plot(t,y)
```

