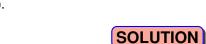
evaluated using the properties of the impulse function, the result is identical to (11.33).



McClellan, Schafer and Yoder, Signal Processing First, ISBN 0-13-065562-7. Prentice Hall, Upper Saddle River, NJ 07458. © 2003 Pearson Education, Inc.



$$X(j\omega) = \sum_{k=-\infty}^{\infty} 2\pi a_k \delta(\omega - k\omega_0)$$

Take the inverse Fourier transform:

$$x(t) = \frac{1}{2\pi} \int_{-\infty}^{\infty} X(j\omega) e^{j\omega t} d\omega$$

$$= \frac{1}{2\pi} \int_{-\infty}^{\infty} \sum_{k=-\infty}^{\infty} 2\pi a_k \delta(\omega - k\omega_0) e^{j\omega t} d\omega$$

$$= \sum_{k=-\infty}^{\infty} \frac{1}{2\pi} \int_{-\infty}^{\infty} 2\pi a_k \delta(\omega - k\omega_0) e^{jk\omega_0 t} d\omega$$

$$= \sum_{k=-\infty}^{\infty} a_k e^{jk\omega_0 t} \int_{-\infty}^{\infty} \delta(\omega - k\omega_0) d\omega$$

$$= \sum_{k=-\infty}^{\infty} a_k e^{jk\omega_0 t}$$

$$= \sum_{k=-\infty}^{\infty} a_k e^{jk\omega_0 t}$$