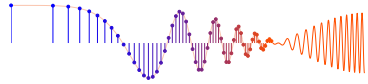

Example 9-2: Sampling with an Impulse

Suppose that we are given the expression $\sin(20\pi t)\delta(t - \frac{1}{80})$ to simplify. The sampling property (9.16) enables the following simplification The important thing to note is that a continuous function (in this case $\sin(20\pi t)$) multiplied by an impulse becomes an impulse with a size dependent only on the value of the continuous function at the time location of the impulse. Using the result of the above manipulation, it follows also that

$$\int_{-\infty}^{\infty} \sin(20\pi t)\delta(t - \tfrac{1}{80})dt = 0.707$$

since the limits of integration include the time at which the impulse occurs.

McClellan, Schafer and Yoder, *Signal Processing First,* ISBN 0-13-065562-7.
Prentice Hall, Upper Saddle River, NJ 07458.